HITACHI

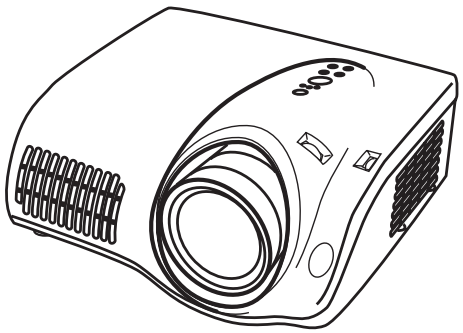
YK | No.0575E

SERVICE MANUAL

PJ-TX300
(C11H2)

⚠ Warning

The technical information and parts shown in this manual are not to be used for: the development, design, production, storage or use of nuclear, chemical, biological or missile weapons or other weapons of mass destruction; or military purposes; or purposes that endanger global safety and peace. Moreover, do not sell, give, or export these items, or grant permission for use to parties with such objectives. Forward all inquiries to Hitachi Ltd.



Caution

Be sure to read this manual before servicing. To assure safety from fire, electric shock, injury, harmful radiation and materials, various measures are provided in this Hitachi Multimedia LCD Projector. Be sure to read cautionary items described in the manual to maintain safety before servicing.

Service Warning

1. When replace the lamp, to avoid burns to your fingers. The lamp becomes too hot.
2. Never touch the lamp bulb with a finger or anything else. Never drop it or give it a shock. They may cause bursting of the bulb.
3. This projector is provided with a high voltage circuit for the lamp. Do not touch the electric parts of power unit, when turn on the projector.
4. Do not touch the exhaust fan, during operation.
5. The LCD module assembly is likely to be damaged. If replacing to the LCD LENS/PRISM assembly, do not hold the FPC of the LCD module assembly.
6. Use the cables which are included with the projector or specified.

Contents

1. Features ---------- 2
2. Specifications ---------- 2
3. Names of each part ---------- 3
4. Adjustment ---------- 6
5. Troubleshooting ---------- 13
6. Service points ---------- 18
7. Wiring diagram ---------- 30
8. Disassembly diagram ---------- 35
9. Replacement parts list ---------- 40
10. RS-232C commands ---------- 41
11. Block diagram ---------- 51
12. Connector connection diagram ---------- 52
13. Basic circuit diagram ---------- 53

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

Multimedia LCD Projector

August 2006

1. Features

- Super focus ED (Extra-low dispersion) lenses are adopted for the highest possible image quality.
- 720P wide LCD panels realize faithful reproduction of high-definition images.
- Motorized iris control is provided for realizing film-like images with blacker black.
- 1.6x zoom lens and the optical lens shift allow flexible installation and viewing position.

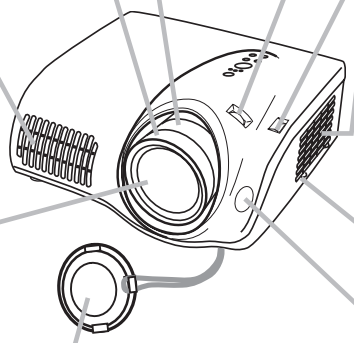
2. Specifications

Liquid crystal panel	Drive system	TFT active matrix
	Panel size	1.8cm(0.7 type)
	Number of pixels	1280 (H) x 720 (V)
Lamp		150W UHB
Video Input	System	NTSC,PAL(BGDHI),SECAM,PAL-M,PAL-N,NTSC4.43,PAL60
	Level	Composite 1.0±0.1Vp-p(75Ωtermination)
		S-Video Y : 1.0±0.1Vp-p(75Ωtermination) C : 0.286±0.1Vp-p(NTSC burst signal,75Ωtermination) 0.3±0.1Vp-p(PAL/SECAM burst signal,75Ωtermination)
		Component Y : 1.0±0.1Vp-p(75Ωtermination) CB/PB : 0.7±0.1Vp-p(75Ωtermination) CR/PR : 0.7±0.1Vp-p(75Ωtermination)
RGB analog input		Video signal: 0.7V p-p (75Ωtermination)
		Sync. signal: TTL level
HDMI digital input		Type: T.M.D.S
		Signal level: DC: 3.3V±5%, AC: 0.15 - 1.56Vp-p
Power supply		AC100~120V / 2.4A , AC220~240V / 1.3A
Power consumption		220W
Dimensions		340(W) × 113(H) × 299(D) mm (No including protruding parts)
Weight		4.7kg(10.4lbs)
Temperature		Operation : 5~35°C Storage : -20~60°C
Accessories		Power cord x 2 (UK, Europe) Component video cable x 1 Lens cap x 1 Rivet (for Lens cap) x 1 Strap (for Lens cap) x 1 Remote control x 1 Battery (for Remote control) x 2 User's manual Safety guide x 1 Operating guide book x 2 SCART adapter x 1

3. Names of each part

● Part names

Projector



Zoom ring

Focus ring

Horizontal lens shift dials

Vertical lens shift dials

Exhaust vent
► Do not block or cover the projector's vents.
► To avoid being burnt, please do not touch areas near the vents while the projector is in use or immediately after use.

Filter cover
Covers the air filter and intake vent.
► Maintain the air filter to ensure proper ventilation.

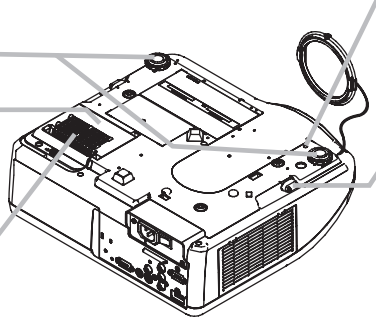
Elevator button

Remote sensor

Lens
A bright light for projecting is emitted from the lens.
► Please do not look into the lens while the projector is in use.

(Front right view)

Lens cover



Strap hole

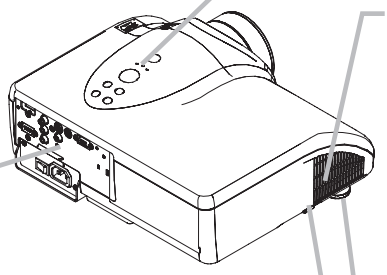
Elevator feet

Elevator button

Lamp cover
Covers the lamp.
► The lamp has a finite product life. Preparation of a new lamp and early replacement are recommended.

(Bottom view)

Intake vent
► Do not place anything that may be sucked into or stick to the vents underneath the projector.



Control buttons
See next page.

Exhaust vent
► Do not block or cover the projector's vents.
► To avoid being burnt, please do not touch areas near the vents while the projector is in use or immediately after use.

Ports
See next page.
► Please see the "Connecting your devices" section for more information.

(Rear left view)

Elevator foot

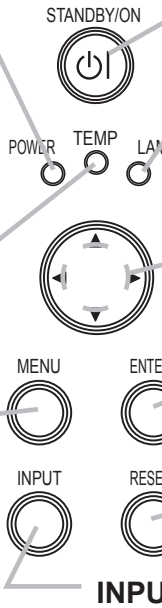
Elevator button

Control buttons

POWER indicator
This indicator blinks while the projector is cooling down or warming up
► Note that a lit or blinking red indicator denotes a problem.

TEMP indicator
► Note that a lit or blinking red indicator indicates a problem.

MENU button
Used to begin or end a menu operation.



STANDBY/ON button
Used to turn the power on and off.

LAMP indicator
► Note that a lit or blinking red indicator indicates a problem.

Cursor buttons ▲,▼,◄,►
Used to make adjustments and operate menus.

ENTER button
Used to proceed to the next stage in a menu operation.

RESET button
Used to cancel an adjustment.

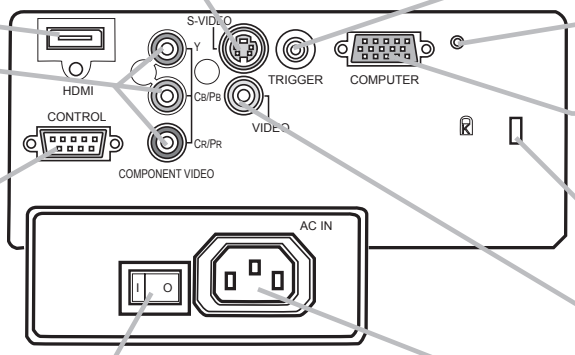
INPUT button
Used to select an input signal. Pressing this button toggles between input ports.

Ports

HDMI port

COMPONENT VIDEO ports
This is a set of input ports composed of Y, C_B/P_B and C_R/P_R ports.

CONTROL port



S-VIDEO port

TRIGGER port

Restart switch

COMPUTER port

Kensington lock slot

VIDEO port

AC inlet

Power switch

NOTE • Use only an HDMI cable marked with the HDMI logo for HDMI connections.
• The TRIGGER port (12V/25mA) is used to connect to a screen that can be controlled via a trigger signal from display equipment.

Remote control

POWER button
Used to turn the power on and off.

BLACK button
Used to select a BLACK mode. Each mode adjusts the black setting to suit different conditions.

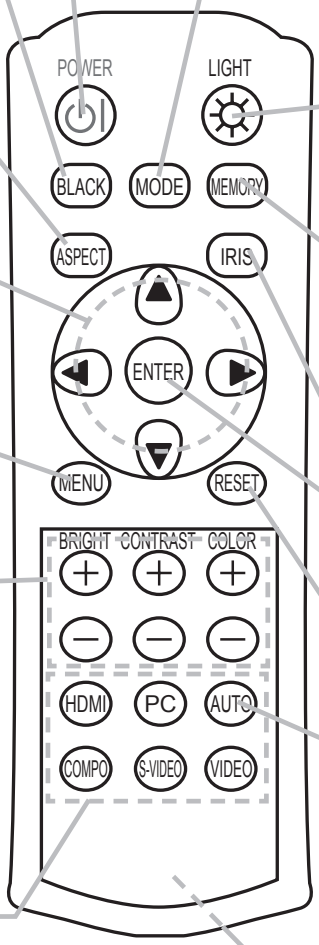
ASPECT button
Used to select an aspect ratio.

Cursor buttons ▲,▼,◄,►
Used to make adjustments and operate menus.

MENU button
Used to begin or end a menu operation.

CONTRAST, BRIGHT, COLOR buttons
Used to adjust the contrast, brightness and color tone.

PC, HDMI, COMPO, S-VIDEO, VIDEO buttons
Used to select an input port.
PC button ⇨ COMPUTER port
HDMI button ⇨ HDMI port
COMPO button ⇨ COMPONENT VIDEO ports
S-VIDEO button ⇨ S-VIDEO port
VIDEO button ⇨ VIDEO port



MODE button
Used to select a mode. Each mode is a combination of settings for gamma, color temperature and iris.

LIGHT button
Used to make the buttons on the remote control light up for a short time.

MEMORY button
Used to save and load user adjustment settings.

IRIS button
Used to adjust the iris.

ENTER button
Used to proceed to the next stage in a menu operation.

RESET button
Used to cancel an adjustment.

AUTO button
Used to enable the automatic adjustment function.

Battery cover
The battery cover is on the back of the remote control.

4. Adjustment

4-1 Before adjusting

4-1-1 Selection of adjustment

When any parts in the table 4-1 are changed, choose the proper adjusting items with the chart.

Table 4-1: Relation between the replaced part and adjustment

Replaced part	Adjustment						
	Flicker (Chap.4-2)	Ghost (Chap.4-3)	DC OFF (Chap.4-4)	E-POS (Chap.4-5)	White balance (Chap.4-6)	Color uniformity (Chap.4-7)	IRIS (Chap.4-8)
Dichroic optics unit	○	○	△	△	△	△	×
LCD/LENS prism assembly	○	○	○	○	○	○	○
PWB assembly Main	○	○	○	○	○	○	○
Lamp unit assembly	△	△	×	×	△	△	×

○ : means need for adjustment. × : means not need for djustment.
△ : means recommended.

4-1-2 Setting of condition before adjustments

1. Before starting adjustments, warm up projector for about 10 minutes.
2. Set Zoom Wide to Max. And project an image with more than 1m (40 inches) in diagonal size.
3. Set the lens position to the center, where you feel click, using horizontal and vertical lens shift dials.
4. Normalizing the video adjustments
   Press the [MENU] button to display the EASY menu. If Advance menu comes up, move to the Easy menu.
   Select the RESET in the EASY menu and press the [▶] or [ENTER] button to open the RESET dialog. Choose the EXECUTE with the [▲] button.
   Note that the projector will not allow you to reset its adjustment values with no signal input.
5. Select the BLACK in the EASY menu and set it to OFF. (This operation is not necessary when no signal is input.)
6. After displaying the HIDDEN SERVICE menu, select the GAMMA, and set it to the TURN OFF.
   NOTE: The HIDDEN SERVICE menu will appear in the following way.
   a. Select the OPTION in the column of the Advance menu.
   b. Press the LIGHT button of the remote control, and then press and hold it again for 3 seconds or longer.

   In case that you operate with the keypad of the projector instead of the remote control, after selecting the OPTION in the column of the Advance menu, press the [◀] button one time. And press and hold it together with the [INPUT] button for 3 seconds or longer.
7. Perform all adjustments from the FACTORY MENU. Operate as follows to display the FACTORY MENU.

   When you use the remote control...

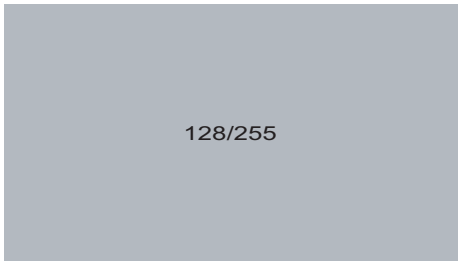
   a. Press the [MENU] button of the remote control to display the Easy menu. (If the Advance menu appears, move to the Easy menu.)
   b. Select the RESET in the Easy menu, and then press the [▶] or [ENTER] button.
   c. Next, press the [RESET] button one time. And hold the [RESET] button for 3 seconds or longer (the FACTORY MENU will appear).

   When you use the keypad of the projector...

   a. Press the [▲], [▼], [◀] or [▶] button of the projector to display the Easy menu. (If the Advance menu appears, move to the Easy menu.)
   b. Select the RESET in the Easy menu, and then press the [▶] or [ENTER] button.
   c. Next, press the [RESET] button one time. And hold the [RESET] button for 3 seconds or longer (the FACTORY MENU will appear).

4-2 Flicker adjustment (V.COM adjustment)

Test pattern for the adjustment



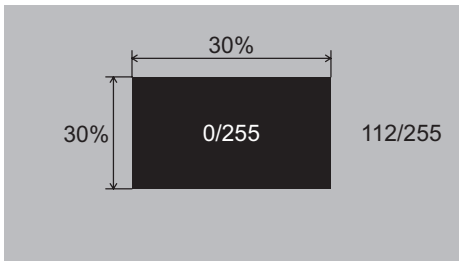
Adjustment procedure

1. Use DAC-P - V.COM - R: in the FACTORY MENU to adjust so that the flicker at the center of the screen is less than the flicker at the periphery. (When the flicker is about the same across the whole screen, adjust so that the flicker at the center of the screen is somewhat less than elsewhere.)
2. In the same way, use DAC-P - V.COM-G: in the FACTORY MENU to adjust the G color flicker.
3. In the same way, use DAC-P - V.COM-B: in the FACTORY MENU to adjust the B color flicker.

NOTE: The test pattern shown on the lef sometimes has a horisontal line accross the screen.

4-3 Ghost adjustment

Test pattern for the adjustment

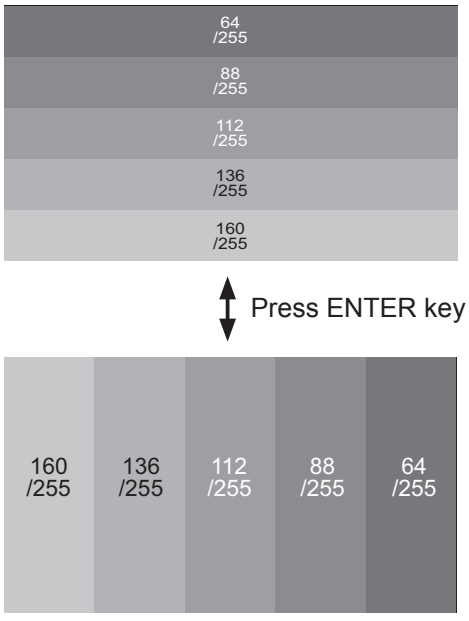


Adjustment procedure

1. Make this adjustment after completing the adjustment in the section 4-2.
2. Use DAC-P - GHOST - R: in the FACTORY MENU to adjust so that R color ghost is at a minimum. (Set the adjustment value to default, and then raise the value. When a ghost appears to the left of a vertical line, reduce the value by 6 steps.)
3. In the same way, use DAC-P - GHOST-G: in the FACTORY MENU to adjust so that G color ghost is at a minimum.
4. In the same way, use DAC-P - GHOST-B: in the FACTORY MENU to adjust so that B color ghost is at a minimum.

4-4 DC OFF adjustment (vertical bars adjustment 1)

Test pattern for the adjustment

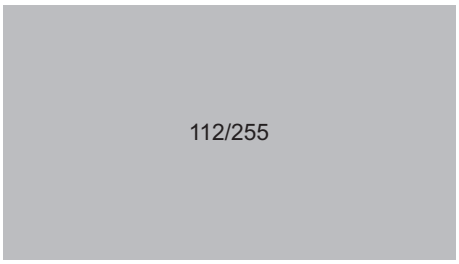


Adjustment procedure

1. Make this adjustment after completing the adjustment in the section 4-3.
2. Open FACTORY MENU. Select **STRIPE > DCOFF > R** and use it so that vertical bars are minimized.
3. In the same way, select **STRIPE > DCOFF > G** and use it so that vertical bars are minimized.
4. In the same way, select **STRIPE > DCOFF > B** and use it so that vertical bars are minimized.

4-5 E-POS adjustment (vertical bars adjustment 2)

Test pattern for the adjustment



Adjustment procedure

1. Make this adjustment after completing the adjustment in the section 4-4.
2. Open FACTORY MENU. Select **DAC-P > E-POS > R** and use it so that vertical bars are minimized.
3. In the same way, select **DAC-P > E-POS > G** and use it so that vertical bars are minimized.
4. In the same way, select **DAC-P > E-POS > B** and use it so that vertical bars are minimized.

4-6 White balance adjustment (visual inspection)

Preparations

1. Perform these adjustments after the adjustments described in Section 4-5.
2. Reset gamma correction before adjustment.
   - Place the cursor on [GAMMA] in the FACTORY MENU, press the [RESET] key and select RESET.

Adjustment procedure

1. First, adjust the G color.
2. Select GAMMA, SUB-CNT, and G: in the FACTORY MENU. If the background is white solid, press the [ENTER] key on the Remote control transmitter to change to [G] monochrome in the 33-tone grayscale.
3. Adjust GAMMA, SUB-CNT, and G: in the FACTORY MENU so that brightness of 33 steps is best.
4. Don't adjust GAMMA, SUB-BRT, and G: in the FACTORY MENU because we want to keep the best contrast ratio.
5. Then adjust colors R and B.
6. Select GAMMA, SUB-CNT, and G: in the FACTORY MENU. If the background is white solid, press the [ENTER] key on the remote control to change to [W] monochrome in the 33-tone grayscale.
7. Adjust GAMMA, SUB-BRT, R: and B: in the FACTORY MENU so that low-brightness white balance is best.
8. Adjust GAMMA, SUB-CNT, R: and B: in the FACTORY MENU so that middle-brightness white balance is best.
9. Repeat steps 7 to 8 above, and adjust so that brightness white balance of 33 steps is best.

4-7 Color uniformity adjustments

Preparations

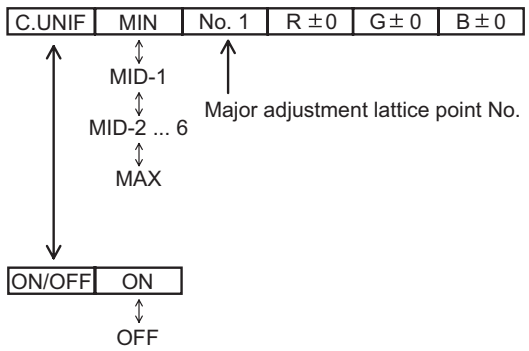
1. Perform these adjustments after the adjustments described in the section 4-6.
2. Make a color uniformity adjustments for the following tones.
   - MIN tone (approx. 7% input signal)
   - MID-1 tone (approx. 21% input signal)
   - MID-2 tone (approx. 24% input signal)
   - MID-3 tone (approx. 29% input signal)
   - MID-4 tone (approx. **% input signal)
   - MID-5 tone (approx. 50% input signal)
   - MID-6 tone (approx. **% input signal)
   - MAX tone (approx. 75% input signal)

   NOTE: The brightness level of the test patterns in MID-4 and MID-6 is selectable.
3. Select the [C.UNIF.] in the FACTORY MENU and press the [▶] key. This operation displays the Adjust Tone menu (shown below) on the bottom of the screen.
   To choose the tone to be adjusted, press the [▶] key and then use the [▲] or [▼] key.
   Select the major adjustment lattice point No. and color, and then adjust them.
4. The major adjustment lattice point numbers (a total of 17 points) corresponds to the major adjustment lattice point positions in the diagram on the right. The color uniformity of the entire screen can be adjusted by adjusting the white balance for each of the points starting in order from the low numbers.
5. Adjustment point No.1 should not be adjusted, because it controls the brightness of the entire screen.
6. To temporarily turn correction off, place the cursor on [C.UNIF.] in the Adjust Tone menu and press the [▼] key. The ON/OFF menu appears. Place the cursor on [ON] with the [▶] key and press the [▼] key. To turn it on again, place the cursor on [OFF] and press the [▲] key.
7. Although this adjustment can also be made using internal signals, we will here use the [ENTER] key on the remote control to select the following two signals.
   - Solid monochrome adjustment color (use G color adjustment when a color differential meter is used).
   - Solid white (use for adjustment other than above).
8. Reset color-shading correction before adjustment.
   - When resetting all values of 8 tones and all colors, place the cursor on [C.UNIF.] in the FACTORY MENU, press the [RESET] key and select RESET in the dialog.
   - When resetting only 1 tone, place the cursor on the tone such as MID-1 to be reset, press the [RESET] key and select RESET in the dialog.
   - Single tone and monochrome resets cannot be performed.

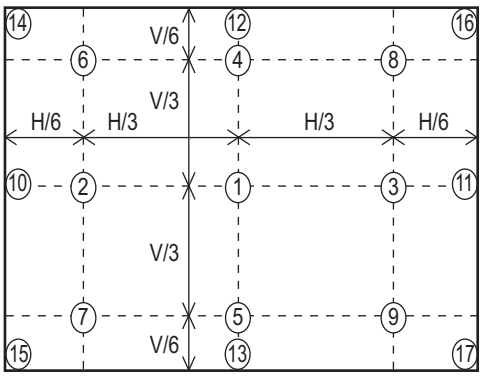
FACTORY MENU

VID-AD
C. UNIF.
DAC-P
GAMMA
STRIPE
OPTION

Adjust tone menu



Major adjustment lattice point position



Adjustment procedure 1
(When a color differential meter is used)

1. First adjust the [MID-1] tone [G:].
2. Select adjustment point [No.2][G:].
   When the background is not [G] monochrome, press the [ENTER] key on the remote control to switch to solid [G] monochrome.
3. Measure the illumination at adjustment points No. 2, No.3, No.10 and No.11.
   The values should be:
   No.2 = Y2 [lx] No.10 = Y10 [lx]
   No.3 = Y3 [lx] No.11 = Y11 [lx]
4. No.2 and No.3 adjustment points have the average of Y2 and Y3.
   Y2 = (Y2 + Y3) / 2 ± 2 [%]
   Y3 = (Y2 + Y3) / 2 ± 2 [%]
5. No.10 and No.11 adjustment points have the average of Y10 and Y11.
   Y10 = (Y10 + Y11) / 2 ± 2 [%]
   Y11 = (Y10 + Y11) / 2 ± 2 [%]
6. Then adjust the [MID-1] tone [R] and [B].
   When the background is [G] monochrome, press the [ENTER] key on the remote control to switch to solid white.
7. Measure the color coordinates of adjustment point [No.1] and make a note of them.
   Assume that they are x = x1, y = y1.
   Note: When the CL-100 color and color difference meter is used, the [Δ](delta) mode is convenient. When adjustment point [No.1] color coordinate has been selected, set the slide switch on the side to [Δ](delta) while holding down the [F] button on the front panel. The measurement shown after this displays the deviation from measurement point 1.
8. Measure the color coordinates of measurement point [No.2] and adjust [No.2][R:] and [B:] so that the coordinates are as follows.
   x = x1 ± 0.005 , y = y1 ± 0.010
9. Similarly, measure adjustment points [No.3] to [No.17] and adjust their color coordinates starting in order from the small number points.
   This completes adjustments required for [MID-1].
   Note: Since excessive correction may lead to a correction data overview during internal calculations, use the following values for reference.
   [No.2] to [No.5] ± 40 or less
   [No.6] to [No.9] ± 50 or less
   [No.10] to [No.13] ± 70 or less
   [No.14] to [No.17] ± 120 or less
10. Then adjust the [MIN] tone [G] so that the adjustment values are two times as much as MID-1] tone [G] values.
    This completes [G] color adjustments.
11. Then adjust [MIN] tone [R] and [B].
    Select [No.2] [B:] and press the [ENTER] key on the Remote control transmitter to change to solid white.
12. Measure the color coordinates of adjustment point [No.1] and make a note of them.
    Assume that they are x = x1, y = y1.
13. Now measure the color coordinates of measurement point [No.2] and adjust [No.2][R:] and [B:] so that the coordinates are as follows.
    x = x1 ± 0.005 , y = y1 ± 0.010 (Target)
    x = x1 ± 0.020 , y = y1 ± 0.040
14. Similarly, measure adjustment points [No.3] to [No.17] and adjust their color coordinates starting in order from the small number points.
    This completes [MIN] tone adjustments.
15. Now make similar adjustments for [MID-2] tone.
    (Adjust [MID-2] tone [G] so that the adjustment data set half as many as [MID-1] tone [G].)
16. Now make similar adjustments for [MID-3], [MID-5], [MAX] tones. (It is not necessary to adjust the [G] data in these tones.)
17. After comleting the step 16, set the value of the [MID-4] tone [R]: [No.2] to the mean of the values of the [R]: [No.2] in the [MID-3] and [MID-4] tones.
18. Set all the values for the [No.2] to [No.17] of the [MID-4] tone [R] and [B] in the same way as the step 17.
19. Finally, set the data of the [MID-6] tone [R] and [B] using the values of the [MID-5] and [MAX] tones in the same way as the [MID-4] tone [R] and [B] adjustments in the step 17 and 18.

Adjustment procedure 2
(visual inspection)

1. First adjust [MIN] tone [G:].
2. Select [No.2] [G:].
   If the background is [G] monochrome, press the [ENTER] key on the remote control to switch to solid white.
3. View measurement point [No.2] and [No.3].
   Lower the [G] color intensity only of the color point whose [G] color is more intense than measurement point [No.1].
4. View measurement point [No.10] and [No.11].
   Lower the [G] color intensity only of the color point whose [G] color is more intense than measurement point [No.1], and raise the intensity of the point whose color intensity is lower than measurement point [No.1].
5. Now adjust the [MIN] tone for colors [R] and [B].
6. View measurement points [No.2], [No.3], [No.10] and [No.11]. Adjust the [R] and [B] of each measurement point so that they have the same color as measurement point [No.1].

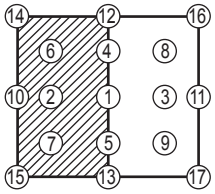
Adjustment technique:

First, adjust [B:] of the point whose color is to be adjusted so that it approximates that of [No.1]. If [R:] is low at this time, the image will have cyan cast, in which case [R:] is increased. On the other hand, if [R:] is excessive, the image will have a magenta cast, in which case [R:] is decreased.

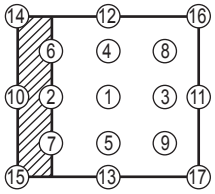
Overall, a cyan cast makes it easy to see color shading.

7. Next, view measurement points [No.4], [No.5], [No.12], [No.13] and make similar adjustments.
8. Then adjust measurement points [No.6], [No.7], [No.8], [No.9], [No.14], [No.15], [No.16] and [No.17]. This completes the [MIN] tone adjustments.
9. Make similar adjustments for other tones, except the [MID-4] and [MID-6] tones, as described in steps 1 to 8 above.

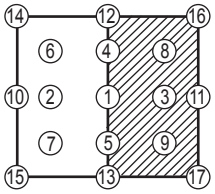
No. 2 deviation range



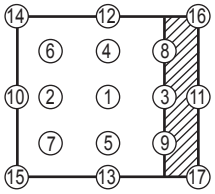
No. 10 deviation range



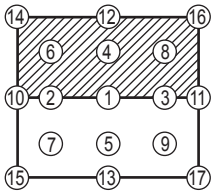
No. 3 deviation range



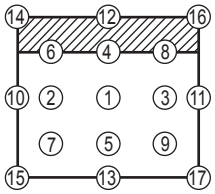
No. 11 deviation range



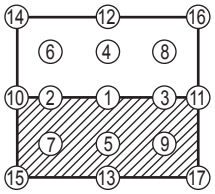
No. 4 deviation range



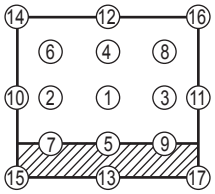
No. 12 deviation range



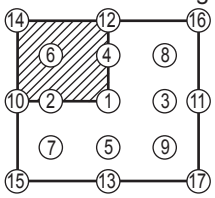
No. 5 deviation range



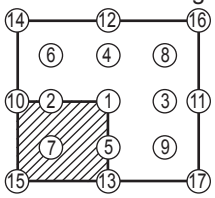
No. 13 deviation range



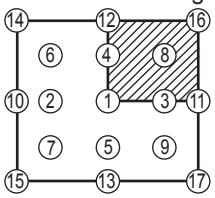
No. 6 deviation range



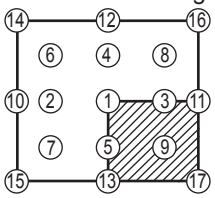
No. 7 deviation range



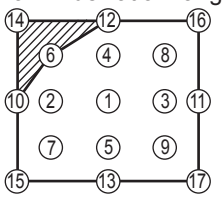
No. 8 deviation range



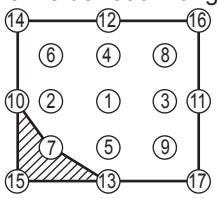
No. 9 deviation range



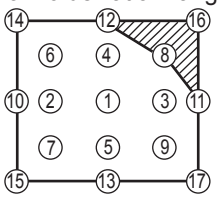
No. 14 deviation range



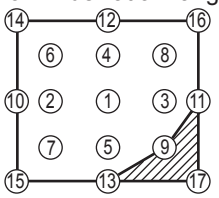
No. 15 deviation range



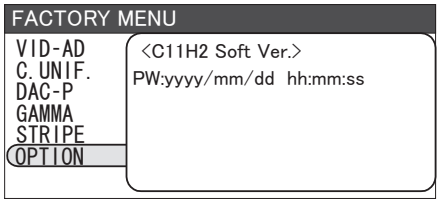
No. 16 deviation range



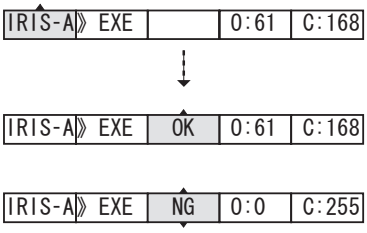
No. 17 deviation range



4-8 IRIS adjustment



IRIS-A menu



Adjustment procedure

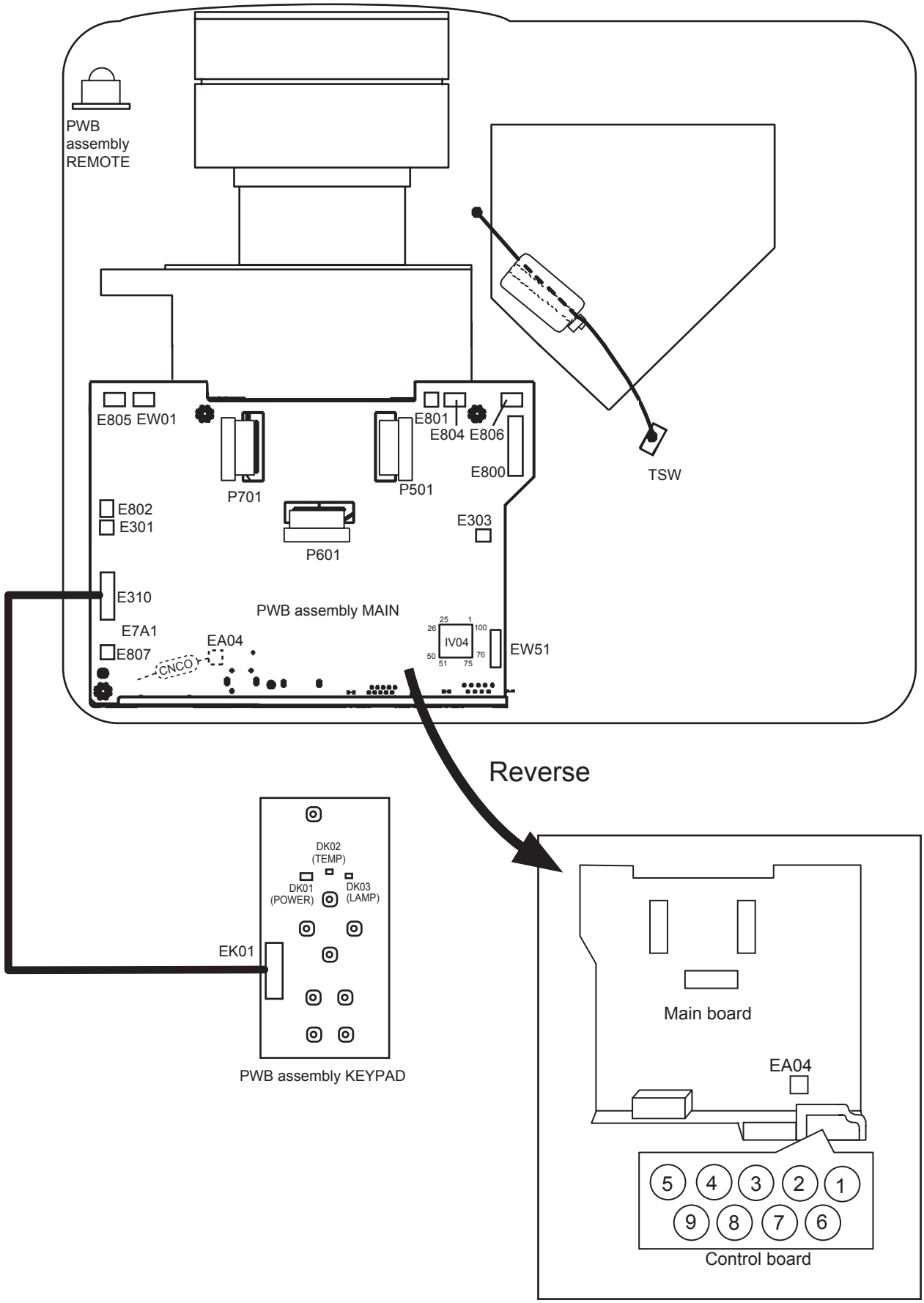
Select the OPTION in the column of rhe FACTORY MENU, and press the [▶] button to the display the IRIS-A menu. Then press the [▶] button to start the automatic adjustment.

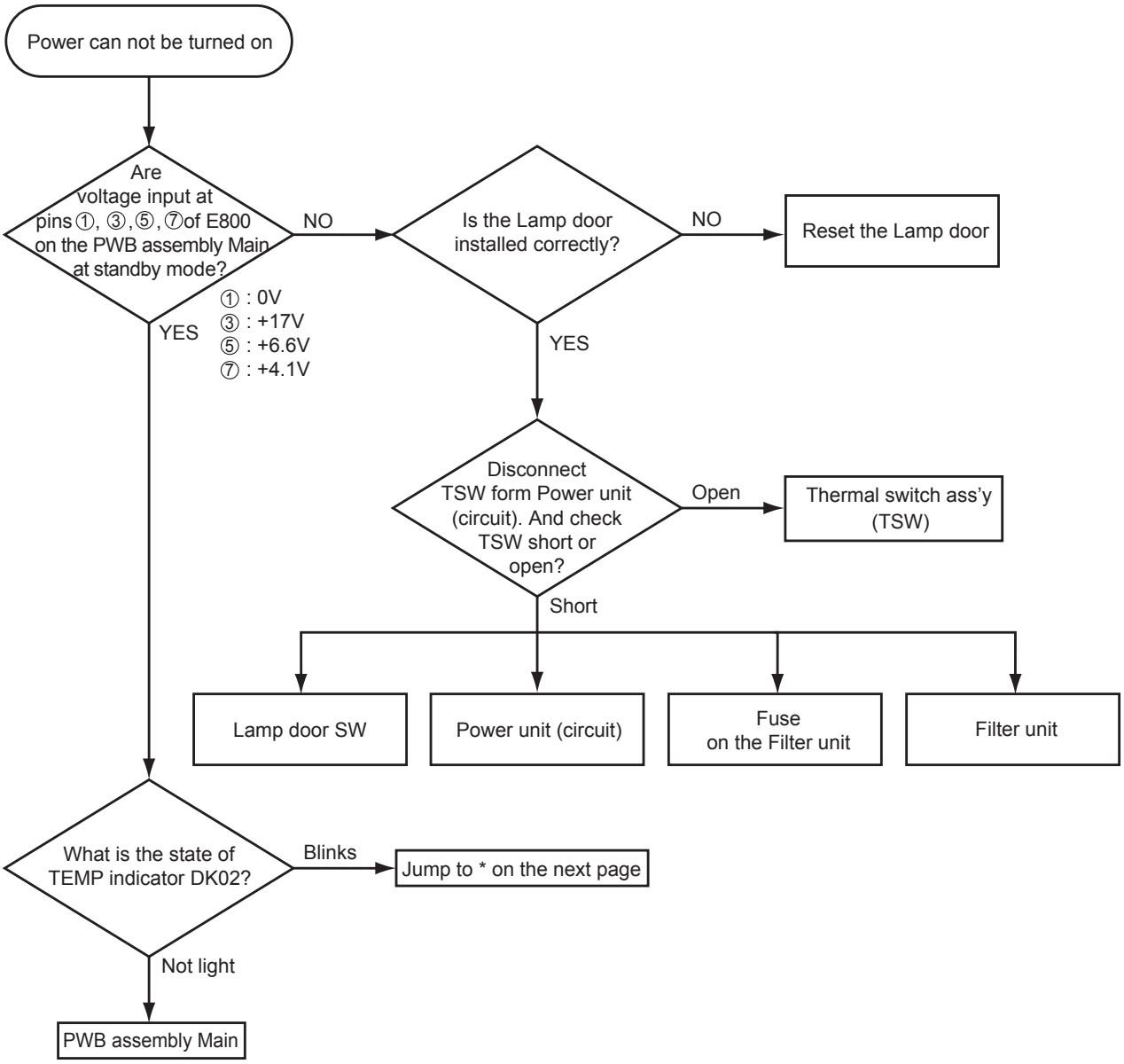
This adjustment takes about 5 seconds. The image will become dark and bright while this period. When the adjustment completes, the cursor moves to OK automatically.

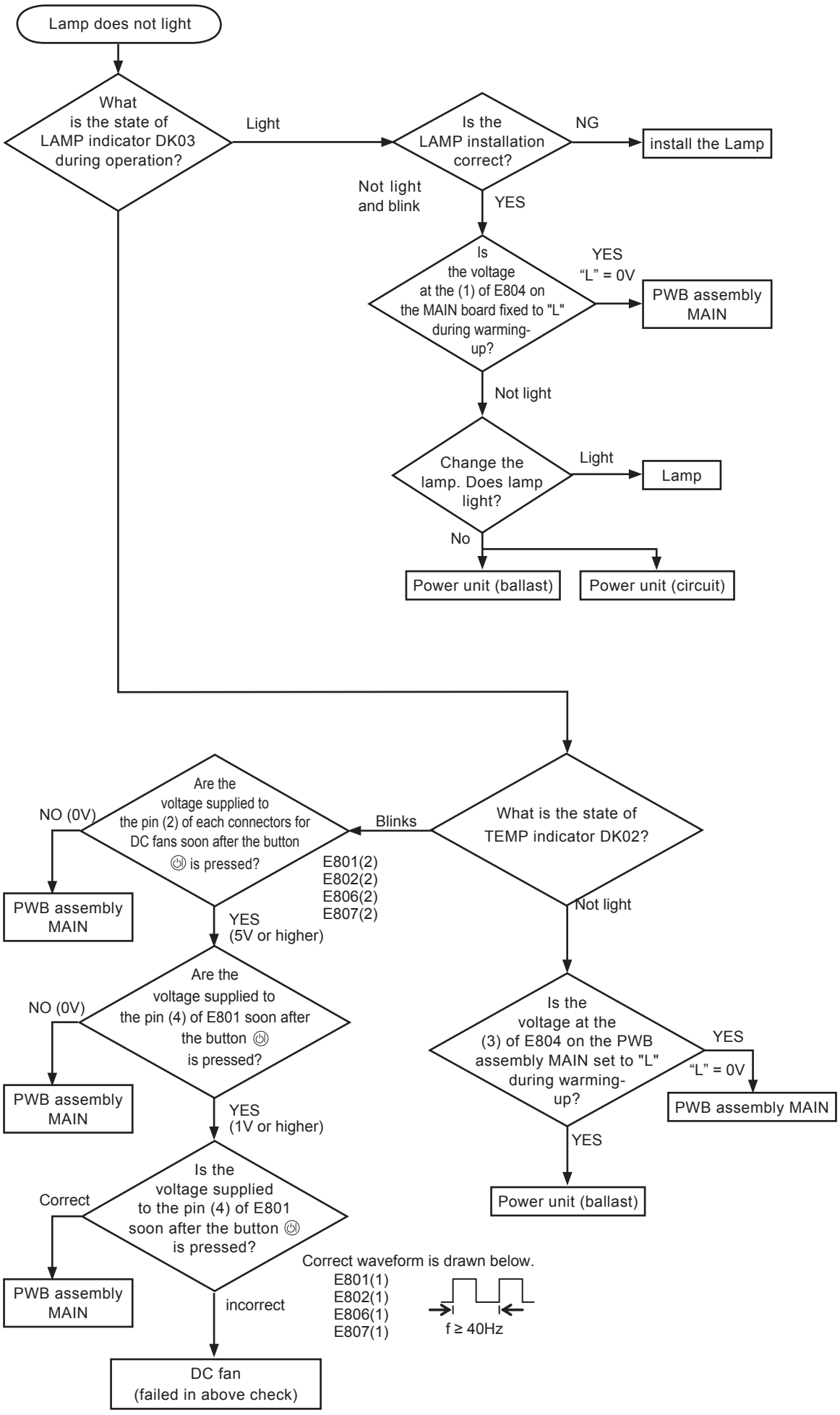
Note that the cursor moves to NG when the adjustment fails. Then make sure the IRIS cable is connected with the connector EW01 of the MAIN board securely (refer to the Wiring diagram in the chapter 7).

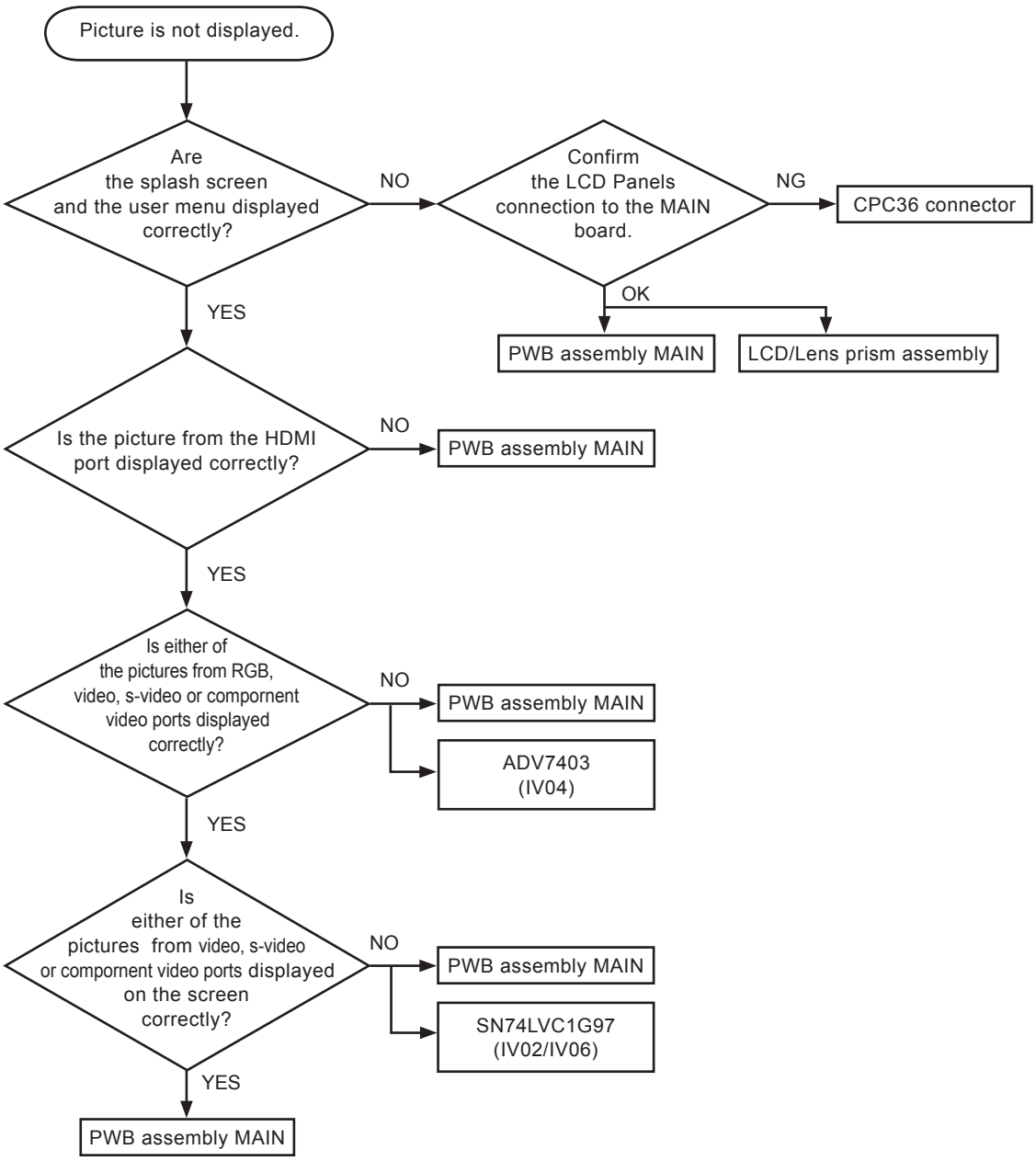
5. Troubleshooting

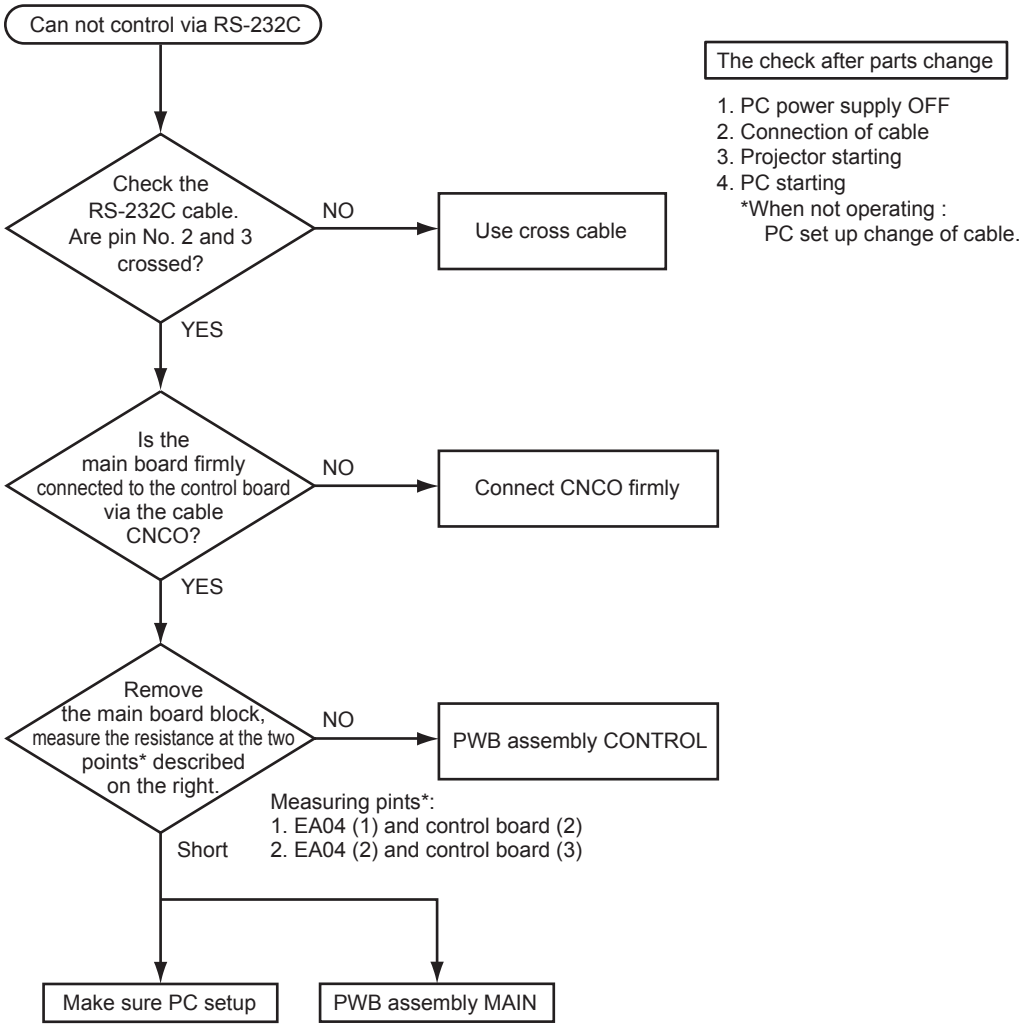
Check points




Power can not be turned on
Are voltage input at pins ①, ③, ⑤, ⑦ of E800 on the PWB assembly Main at standby mode?
NO
Is the Lamp door installed correctly?
NO
Reset the Lamp door
① : 0V
③ : +17V
⑤ : +6.6V
⑦ : +4.1V
YES
YES
Disconnect TSW form Power unit (circuit). And check TSW short or open?
Open
Thermal switch ass'y (TSW)
Short
Lamp door SW
Power unit (circuit)
Fuse on the Filter unit
Filter unit
What is the state of TEMP indicator DK02?
Blinks
Jump to * on the next page
Not light
PWB assembly Main


Lamp does not light
What is the state of LAMP indicator DK03 during operation?
Light
Is the LAMP installation correct?
NG
install the Lamp
Not light and blink
YES
Is the voltage at the (1) of E804 on the MAIN board fixed to "L" during warming-up?
YES "L" = 0V
PWB assembly MAIN
Not light
Change the lamp. Does lamp light?
Light
Lamp
No
Power unit (ballast)
Power unit (circuit)
What is the state of TEMP indicator DK02?
Blinks
E801(2) E802(2) E806(2) E807(2)
Are the voltage supplied to the pin (2) of each connectors for DC fans soon after the button ⏻ is pressed?
NO (0V)
PWB assembly MAIN
YES (5V or higher)
Are the voltage supplied to the pin (4) of E801 soon after the button ⏻ is pressed?
NO (0V)
PWB assembly MAIN
YES (1V or higher)
Is the voltage supplied to the pin (4) of E801 soon after the button ⏻ is pressed?
Correct
PWB assembly MAIN
incorrect
DC fan (failed in above check)
Not light
Is the voltage at the (3) of E804 on the PWB assembly MAIN set to "L" during warming-up?
YES "L" = 0V
PWB assembly MAIN
YES
Power unit (ballast)
Correct waveform is drawn below.
E801(1) E802(1) E806(1) E807(1)
f ≥ 40Hz


Picture is not displayed.
Are the splash screen and the user menu displayed correctly?
NO
Confirm the LCD Panels connection to the MAIN board.
NG
CPC36 connector
OK
PWB assembly MAIN
LCD/Lens prism assembly
YES
Is the picture from the HDMI port displayed correctly?
NO
PWB assembly MAIN
YES
Is either of the pictures from RGB, video, s-video or compornent video ports displayed correctly?
NO
PWB assembly MAIN
ADV7403 (IV04)
YES
Is either of the pictures from video, s-video or compornent video ports displayed on the screen correctly?
NO
PWB assembly MAIN
SN74LVC1G97 (IV02/IV06)
YES
PWB assembly MAIN


Can not control via RS-232C
Check the RS-232C cable. Are pin No. 2 and 3 crossed?
NO
Use cross cable
YES
Is the main board firmly connected to the control board via the cable CNCO?
NO
Connect CNCO firmly
YES
Remove the main board block, measure the resistance at the two points* described on the right.
NO
PWB assembly CONTROL
Measuring pints*:
1. EA04 (1) and control board (2)
2. EA04 (2) and control board (3)
Short
Make sure PC setup
PWB assembly MAIN
The check after parts change
1. PC power supply OFF
2. Connection of cable
3. Projector starting
4. PC starting
*When not operating :
PC set up change of cable.

6. Service points

6-1 Lead free solder [CAUTION]

This product uses lead free solder (unleaded) to help preserve the environment. Please read these instructions before attempting any soldering work.

⚠ CAUTION
Always wear safety glasses to prevent fumes or molten solder from getting into the eyes. Lead free solder can splatter at high temperatures (600˚C).

■ Lead free solder indicator

Printed circuit boards using lead free solder are engraved with an "F" or "LF".

■ Properties of lead free solder

The melting point of lead free solder is 40-50˚C higher than leaded solder.

■ Servicing solder

Solder with an alloy composition of Sn-3.0Ag-0.5Cu or Sn-0.7Cu is recommended.

Although servicing with leaded solder is possible, there are a few precautions that have to be taken. (Not taking these precautions may cause the solder to not harden properly, and lead to consequent malfunctions.)

Precautions when using leaded solder

- Remove all lead free solder from soldered joints when replacing components.
- If leaded solder should be added to existing lead free joints, mix in the leaded solder thoroughly after the lead free solder has been completely melted (do not apply the soldering iron without solder).

■ Servicing soldering iron

A soldering iron with a temperature setting capability (temperature control function) is recommended.

The melting point of lead free solder is higher than leaded solder. Use a soldering iron that maintains a high stable temperature (large heat capacity), and that allows temperature adjustment according to the part being serviced, to avoid poor servicing performance.

Recommended soldering iron:

- Soldering iron with temperature control function (temperature range: 320-450˚C)

Recommended temperature range per part:

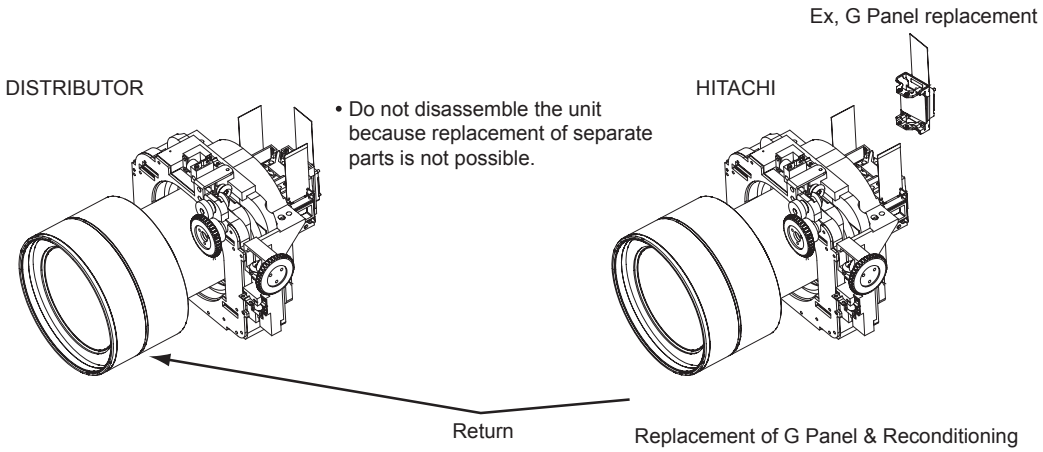
Part	Soldering iron temperature
Mounting (chips) on mounted PCB	320˚C±30˚C
Mounting (chips) on empty PCB	380˚C±30˚C
Chassis, metallic shield, etc.	420˚C±30˚C

The PWB assembly which has used lead free solder

① PWB assembly MAIN
② PWB assembly REMOTE
③ PWB assembly CONTROL
④ PWB assembly KEYPAD
⑤ POWER UNIT (BALLAST)
⑥ POWER UNIT (CIRCUIT)
⑦ FILTER UNIT

6-2 Replacing The LCD/Lens Prism assembly

You must not replace separately the parts of the LCD/Lens Prism assembly because it has been assembled in the manufacture with precise adjustments. Therefore, you may replace the whole unit of LCD/Lens Prism assembly even though any parts of it are damaged. If the LCD panel or the iris motor of LCD/Lens Prism assembly is damaged, you can send the whole unit of LCD/Lens Prism assembly to HITACHI, where we will replace the malfunctioned part to recondition it, and then send it back to you.


Ex, G Panel replacement
DISTRIBUTOR
• Do not disassemble the unit because replacement of separate parts is not possible.
HITACHI
Return
Replacement of G Panel & Reconditioning

6-3 Cleaning up dust from panels and optical filters

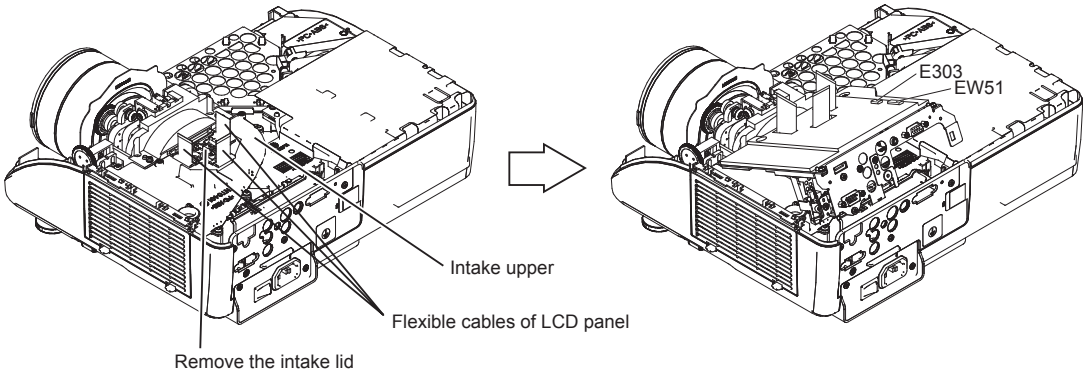
1. Preparation

Please prepare cleaning tools and materials as follows. And prepare relatively clean room not to work in additional dust, while removing operation.

(1) Swab for cleaning • • • • • • P#: NX08061, "Cotton stick L147"
(2) Air duster (Dust blower, spray can)
(3) Vacuum cleaner

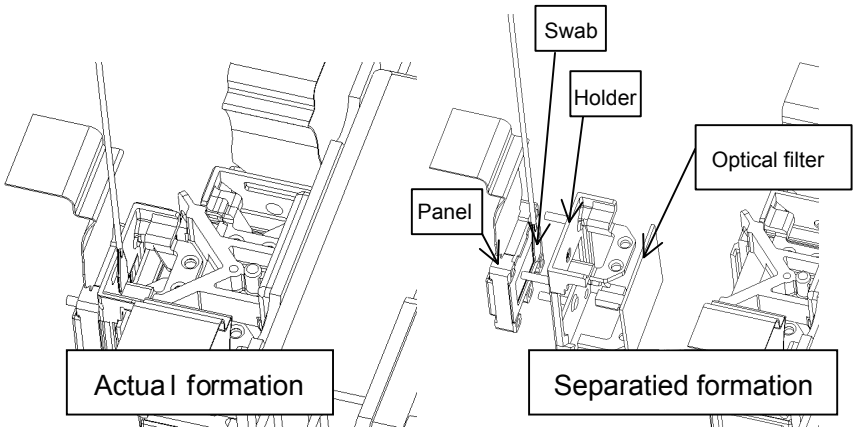
2. Disassemble and open the maintenance hole.

(1) Turn off the projector, and unplug the power cord.
(2) Remove the top cover, according to the disassembling diagram of chapter 8.
(3) Remove the PWB assembly MAIN, according to the chapter 8.
(4) Remove the Intake LID.



(5) Re-connect the wires to the connectors of the main board except for EW51 and E303 (refer to the diagram on the page 13), and put the main board on the bottom case as shown in the upper right-hand diagram.
(6) Wrap the LCD panel flexible cables with insulation sheet such as paper in order to prevent the contacts of the flexible cables from touching to the any electrical parts, and pass them through the holes of the main board.

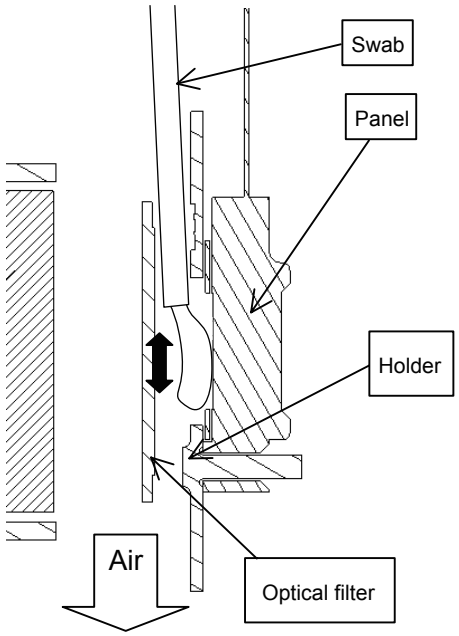
3. Maintenance point



Each color part has same construction.
By using swab and air duster, you can easily remove dust from panel and optical filter.

4. Cleaning the panels and optical filters

(1) Turn on the set and lit on the lamp.
(2) Set blank screen to white with reference to the section 6-13.
(3) By using swab and air duster, remove the dust. Focusing dust makes you check the dust on screen.
(4) If cleaning up dust is hard, clean them again after powering off, disconnecting power cord and removing Intake upper.



- While removing the dust, separated dust will be blown off by air cooling system.
- Please pay attention not to damage LCD panels and optical filters.

⚠CAUTION

Never drop or insert the swab or any other objects into the panel fan, which is located on the bottom of the optical unit, during the operation. This may cause the damage to the LCD panels, optical filters, panel fan, etc. If you drop or insert conductive objects into the panel fan, power units can be damaged.

5. Re-assembly

(1) Turn off the set and remove the PWB assembly MAIN.
(2) Set the intake upper and intake LID.
(3) Re-attach the PWB assembly MAIN.
(4) Re-assemble the projector.
(5) While re-assembling, please clean the intake upper, intake LID, air filter and filter cover by using vacuum cleaner.

6-4 Putting batteries

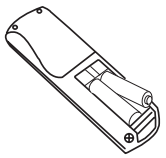
⚠ WARNING

Always handle batteries with care and use them only as directed. Batteries may explode if mishandled. Mishandling may also result in cracking or leakage, which could in turn result in fire, injury and/or pollution of the surrounding environment.

- Do not recharge, short circuit, solder, disassemble or dispose of batteries in fire or water.
- Be sure to use only the batteries specified. Do not use different types of batteries together. Do not mix new and old batteries.
- Make sure the plus and minus terminals are correctly aligned when loading batteries.
- Keep batteries away from children and pets.
- Keep batteries in a dark, cool and dry place.
- Do not drop, hit or otherwise jar the battery in anyway.
- If you notice battery leakage, clean out the liquid and then replace the battery. If any of the liquid gets on your body or clothes, immediately rinse well with water.
- Obey local laws on battery disposal.

1. Remove the battery cover.
   Slide back and remove the battery cover in the direction of the arrow.

2. Insert the batteries.
   Align and insert the two AAA batteries according to their plus and minus terminals as indicated in the remote control.



3. Close the battery cover.
   Replace the battery cover in the direction of the arrow and snap it back into place.

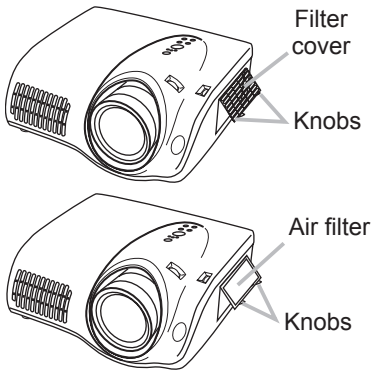
6-5 Air filter

⚠WARNING

- Do not take care of the projector during use or immediately after use. Handling while the projector is hot could cause burn and/or projector malfunction. Before maintaining, make sure that the power switch is off, that the power cord is unplugged, and that the projector is adequately cool.
- Use only the specified air filter type. Do not use the projector with the air filter or the filter cover removed. Doing so could cause fire and/or projector malfunction.
- The air filter should be cleaned periodically. If the air filter becomes blocked by dust or other debris, the internal temperature will rise, which could cause burns, fire and/or projector malfunction, or reduce the lifetime of the projector.

If the air filter becomes clogged by dust or the like, internal temperatures will rise and could cause fire, burn and/or projector malfunction. When the indicators or a message prompts you to clean the air filter, make sure to clean it as soon as possible. Check and clean the air filter periodically, even if no message is displayed.
Please replace the air filter when it is damaged or too dirty to be cleaned. Replace the air filter when the lamp is replaced. An air filter of the specified type will be included with replacement lamps for this projector.

1. Turn the projector off, and unplug the power cord. Allow the projector to sufficiently cool down.
2. After making sure that the projector has cooled adequately, remove the filter cover and air filter. Hold the knobs while lifting.
3. Use a vacuum cleaner to clean the air filter vent, the air filter and filter cover. Please replace the air filter when it is damaged or too dirty to be cleaned.
4. Set the cleaned or new air filter into place, and press the point between the 2 knobs.
5. Turn the projector on.
6. Reset the FILTER TIME in the OPTION menu.



(1) Press the MENU button to display a menu. If you are using the Advanced Menu skip the next step (2).
(2) To switch from the EASY MENU to the Advanced Menu, select the “Go To the Advanced Menu …” item in the EASY MENU using the ▲/▼ cursor buttons, then press the ► cursor button. The Advanced Menu will appear.
(3) Select the “OPTION” item in the left column of the Advanced Menu using the ▲/▼ cursor buttons then press the ► cursor button.
(4) Select the “FILTER TIME” item in the right column of the Advanced Menu using the ▲/▼ cursor buttons, then press the ► cursor button and the FILTER TIME menu will appear.
(5) Pressing the ▲ cursor button in the menu resets the FILTER TIME.

NOTE • Please replace the air filter when it is damaged or too dirty to be cleaned, and also when the lamp is replaced.
- Only reset the FILTER TIME item when you have cleaned or replaced the air filter so that the FILTER TIME remains accurate.
- The projector may display the message “CHECK THE AIR FLOW” or automatically turn the power off in order to prevent the internal heat level from rising.

6-6 Lamp

⚠ WARNING

- The projector uses a high-pressure mercury glass lamp. The lamp can **break with a loud bang, or burn out,** if jolted or scratched, handled while hot, or worn over time. Note that each lamp has a different lifetime, and some may burst or burn out soon after you start using them. In addition, when the bulb bursts, it is possible for **shards of glass** to fly into the lamp housing, and for **gas containing mercury** to escape from the projector's vent holes.

- **About disposal of a lamp**
  - This product contains a mercury lamp; do not put in trash. Dispose of in accord with environmental laws. For lamp recycling, go to www.lamprecycle.org. (in the US) For product disposal, contact your local government agency or www.eiae.org (in the US) or www.epsc.ca (in Canada).

Disconnect the plug from the power outlet

- If the lamp should break (it will make a loud bang when it does), unplug the power cord from the outlet. Note that shards of glass could damage the projector's internals, or cause injury during handling.
- If the lamp should break (it will make a loud bang when it does), ventilate the room well, and make sure not to breathe the gas that comes out of the projector vents, or get it in your eyes or mouth.
- Before replacing the lamp, turn the projector off and unplug the power cord, then wait at least 45 minutes for the lamp to cool sufficiently. Handling the lamp while hot can cause burns, as well as damaging the lamp.

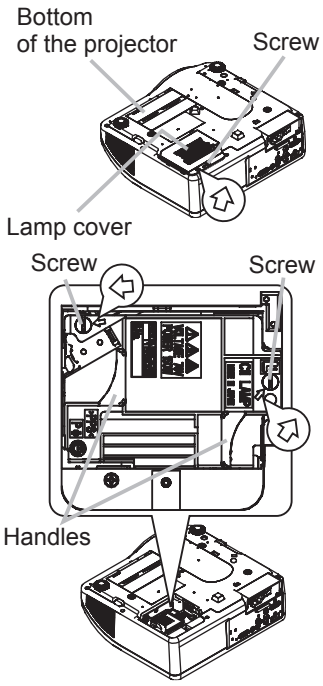
- Never unscrew except the appointed (marked by an arrow) screws.
- Do not open the lamp cover while the projector is suspended from above. This is dangerous, since if the lamp's bulb has broken, the shards will fall out when the cover is opened.
- Do not use the projector with the lamp cover removed. At the lamp replacing, make sure that the screws are screwed in firmly. Loose screws could result in damage or injury.

- Use only the lamp of the specified type.
- If the lamp breaks soon after the first time it is used, it is possible that there are electrical problems elsewhere besides the lamp.
- Handle with care: jolting or scratching could cause the lamp bulb to burst during use.
- If the indicators or a message prompts you to replace the lamp (see the section "Related Messages" and "Regarding the indicator Lamps"), replace the lamp as soon as possible. Using the lamp for long periods of time, or past the replacement date, could cause it to burst. Do not use old (used) lamps; this is a cause of breakage.

● **Replacing the Lamp**

A lamp has a finite product life. Using the lamp for long periods of the time could cause the picture to become darker or the color tone to become poor. Note that each lamp has a different lifetime, and some may burst or burn out soon after you start using them.

1. Turn the projector off, and unplug the power cord. Allow the projector to cool for at least 45 minutes.
2. Prepare a new lamp.
3. After making sure that the projector has adequately cooled, slowly turn the projector over so that the bottom is facing up.
4. Loosen the lamp cover screw (marked by the arrow), then slide and lift the lamp cover.
5. Loosen the 2 lamp screws (marked by the arrow), and slowly lift the lamp by the handles.
Be careful when handling the lamp. Breaking the lamp could cause injury and the release of gas containing mercury.
6. Insert the new lamp, and retighten the screws that were loosened in the previous step to lock it in place.
7. Slide the lamp cover into place, and retighten the lamp cover screw loosened in step 4.
8. Please reposition and reconnect the projector. Then turn the projector on.
9. Reset the LAMP TIME in the OPTION menu.



(1) Press the MENU button to display a menu. If you are using the Advanced Menu skip the next step (2).
(2) To switch from the EASY MENU to the Advanced Menu, select the “Go To the Advanced Menu …” item in the EASY MENU using the ▲/▼ cursor buttons, then press the ► cursor button. The Advanced Menu will appear.
(3) Select the “OPTION” item in the left column of the Advanced Menu using the ▲/▼ cursor buttons then press the ► cursor button.
(4) Select the “LAMP TIME” item in the right column of the Advanced Menu using the ▲/▼ cursor buttons, then press the ► cursor button and the LAMP TIME menu will appear.
(5) Pressing the ▲ cursor button in the menu resets the LAMP TIME.

NOTE • Only reset the LAMP TIME item when you have replaced the lamp so that the LAMP TIME remains accurate.

6-7 Other care

⚠ WARNING
Before caring, make sure the power switch is off and the power cable is not plugged in, and then allow the projector to cool sufficiently. The care in a high temperature state of the projector could cause a burn and/or malfunction to the projector. Avoid wetting the projector or inserting liquids in the projector. It could result in a fire, an electric shock, and and/or malfunction to the projector. • Don't put a container containing water , cleaner or chemicals near the projector. • Don't use aerosols or sprays.
⚠ CAUTION
Please take right care of the projector according to the following. Incorrect care could cause not only an injury but adverse influence such as discoloration, peeling paint, etc. • Do not use cleaner or chemicals other than those listed below. • Do not polish or wipe with hard objects.

● **Inside of the projector**

In order to ensure the safe use of the projector, it needs to clean and inspect the projector about once every 2 years.

● **Caring for the lens**

If the lens is flawed, soiled or fogged, it could cause deterioration of display quality. Please take care of the lens, being cautions of the handling.

1. Turn the projector off, and unplug the power cord. Allow the projector to cool sufficiently.
2. After making sure that the projector is cool adequately, lightly wipe the lens with a commercially available lens-cleaning wipe. Do not touch the lens directly with your hand.

● **Caring for the cabinet and remote control**

Incorrect care could have adverse influence such as discoloration, peeling paint, etc.

1. Turn the projector off, and unplug the power cord. Allow the projector to cool sufficiently.
2. After making sure that the projector is cool adequately, lightly wipe with gauze or a soft cloth.
   If soiling is severe, dip soft cloth in water or a nautral cleaner dilute in water, and wipe lightly after wringing well. Then, wipe lightly with a soft, dry cloth.

6-8 Notice of AUTO adjustment

Use of AUTO adjustment with the image through RGB input optimizes V_POSI, H_POSI, H_SIZE and H_PHASE automatically.

In case that projected image has dark tone around its peripheral, AUTO operation sometimes makes artifacts in the image, shifts capture area and so on. Those failures are caused by period of image data is not exactly distinguished to period of blanking on signal processing.

To avoid such phenomena, AUTO function should be used with the full size picture that has bright tone on its peripheral.

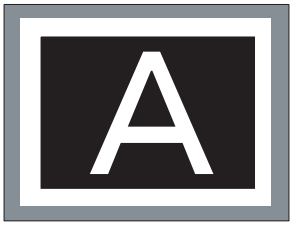


Image when AUTO operates correctly

Image when AUTO fails.

- Noting image of top or bottom lines.
- Shift of the image to East or West.
- Artifacts on image. Etc.

Note

1) The phenomenon at the failure of AUTO adjustment depends on resolution of input source, scene of picture etc.
2) There is no failure above in AUTO with video source through VIDEO, S-VIDEO or COMPONENT input. The reason is why recognition of input signal's standard does not need to search the capture range from input signal itself.

6-9 Related Messages

When the unit's power is on, messages such as those shown below may be displayed. When any such message is displayed on the screen, please respond as described below.

Although these messages will be automatically disappeared around several minutes, it will be reappeared every time the power is turned on.

Message	Description
NO INPUT IS DETECTED ON ***	**There is no input signal.** Please confirm the signal input connection, and the status of the signal source.
SYNC IS OUT OF RANGE ON *** fH *****kHz fV *****Hz	**The horizontal or vertical wavelength of the inputted signal is outside of the response parameters of this unit.** Please confirm the specs for this unit or the signal source specs.
CHECK THE AIR FLOW	**The internal portion temperature is rising.** Please turn the power OFF, and allow the unit to cool down at least 20 minutes. After having confirmed the following items, please turn the power ON again. • Is there blockage of the air passage aperture? • Is the air filter dirty? • Does the peripheral temperature exceed 35°C? • If the same indication is after the treatment, please set the HIGH at FAN SPEED of the item SERVICE of the OPTION menu.
CLEAN THE AIR FILTER POWER OFF FIRST, THEN CLEAN THE AIR FILTER. AFTER CLEANING THE AIR FILTER, RESET THE FILTER TIMER.	**A note of precaution when cleaning the air filter.** Please immediately turn the power OFF, and clean or change the air filter by referring to the "Air Filter" section of this manual. After you have cleaned or changed the air filter, please be sure to reset the filter timer.

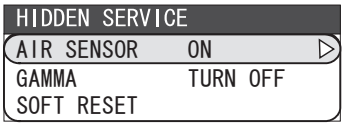
6-10 Regarding the indicator lamps

Lighting and flashing of the POWER indicator, the LAMP indicator, and the TEMP indicator have the meanings as described in the table below. Please follow the instructions within the table.

NOTE • When the interior portion has become overheated, for safety purposes, the power source is automatically turned off, and the indicator lamps may also be turned off. In such a case, press the "○" (OFF) side of the main power switch, and wait at least 45 minutes. After the projector has sufficiently cooled down, please make confirmation of the attachment state of the lamp and lamp cover, and then turn the power on again.

POWER indicator	LAMP indicator	TEMP indicator	Description
Lighting In Orange	Turned off	Turned off	**The projector is in a standby state.**
Blinking In Green	Turned off	Turned off	**The projector is warming up.** Please wait.
Lighting In Green	Turned off	Turned off	**The projector is in an on state.** Ordinary operations may be performed.
Blinking In Orange	Turned off	Turned off	**The projector is cooling down.** Please wait.
Blinking In Red	(discretionary)	(discretionary)	**The projector is cooling down. A certain error has been detected.** Please wait until the POWER indicator finishes blinking, and then perform the proper measure, refering to the followings.
Blinking In Red or Lighting In Red	Lighting In Red	Turned off	**The lamp does not light, and there is a possibility that interior portion has become heated.** Please turn the power off, and allow the projector to cool down at least 20 minutes. After the projector has sufficiently cooled down, please make confirmation of the following items, and then turn the power on again. • Is there blockage of the air passage aperture? • Is the air filter dirty? • Does the peripheral temperature exceed 35°C? If the same indication is displayed after the remedy, please change the lamp by referring to the section "Lamp".
Blinking In Red or Lighting In Red	Turned off	Blinking In Red	**The cooling fan is not operating.** Please turn the power off, and allow the unit to cool down at least 20 minutes. After the projector has sufficiently cooled down, please make confirmation that no foreign matter has become caught in the fan, etc. and then turn the power on again.
Blinking In Red or Lighting In Red	Turned off	Lighting In Red	**There is a possibility that the interior portion has become heated.** Please turn the power off, and allow the unit to cool down at least 20 minutes. After the projector has sufficiently cooled down, please make confirmation of the following items, and then turn the power on again. • Is there blockage of the air passage aperture? • Is the air filter dirty? • Does the peripheral temperature exceed 35°C? If the same indication is displayed after the treatment, please change the lamp by referring to the section "Lamp".
Lighting In Green	Alternative blinking in Red		**There is a possibility that the interior portion has become overcooled.** Please use the projector within the usage temperature parameters (5°C to 35°C). After the remedy, reset the power to ON.
Lighting In Green	Simultaneous blinking in Red		**It is time to clean the air filter.** Please immediately turn the power OFF, and clean or change the air filter by referring to the section "Air Filter". After cleaning or changed the air filter, please be sure to reset the filter timer. After the remedy, reset the power to ON.

6-11 HIDDEN SERVICE MENU



To display the OSD for “HIDDEN SERVICE MENU” set up.

By the control panel	By the remote control transmitter
1. Display the Advance menu by the “MENU” button.(If EASY MENU appears, choose “Go to Advance menu” to display ADVANCE MENU.) 2. Select the “OPTION” on the menu. 3. Continue press the button [◀] first, then press the button [◀] together with “INPUT”, and hold for 3 seconds.	1. Display the menu by the “MENU” button. (If EASY MENU appears, choose “Go to Advance menu” to display ADVANCE MENU.) 2. Select the “OPTION” on the menu. 3. Press the “MAGNIFY OFF” button. Next hold the “MAGNIFY OFF” button for 3 seconds.

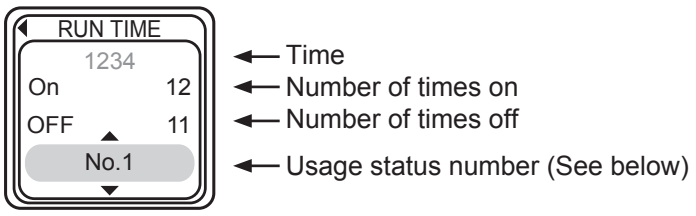
● SOFT RESET

If this is executed, all of the user data is initialized. Never use it when not required.

6-12 RUN TIME window

● Set operating time display method (accumulated lamp time display method)

1. Select “OPTION” from the Advance menu, then place the cursor on the “LAMP TIME”.
2. Press the [▶], [ENTER] or [RESET] button.
3. Press the [Reset] button once, then press [KEYSTONE] button of the remote control for 3 seconds or more to display the screen shown below. (The menu will close after 10 seconds if there are no further operations.)
4. Use [▲] and [▼] buttons to select the usage status number. (The usage status is as shown below.)



Usage status number

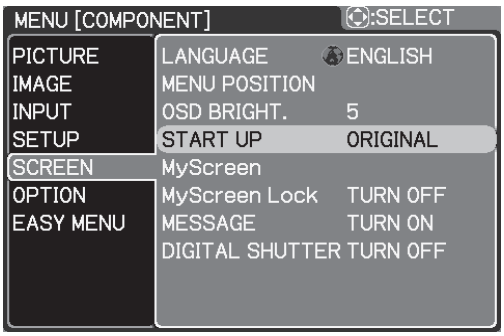
0 ..... Total usage status
1 ..... Current usage status
2 ..... Usage status before first reset
3 ..... Usage status before second reset
||
9 ..... Usage status before eighth reset
10..... Total time(hrs.) the projector has been used in both stand-by and operation

6-13 White Blank Display

If the projector continues projecting a still image, inactive image or images that are not 16:9 aspect by 16:9 panel for long time, the LCD panel might possibly be printed.
To reduce this problem, please make the projector project a whole white screen for 1 hour or more.

Setup to the white blank display

1. Open MENU and select the START UP on the SCREEN menu using the [▲] and [▼] buttons.

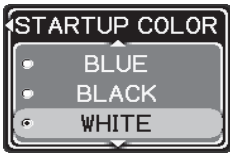


2. Display the START UP Menu using the [▶] button and select the TURN OFF.

3. Display the STARTUP COLOR menu.

1) By the control panel
   Continue press the [▶] button first, then press the [▶] button together with the [INPUT] button, and hold for 3 seconds.

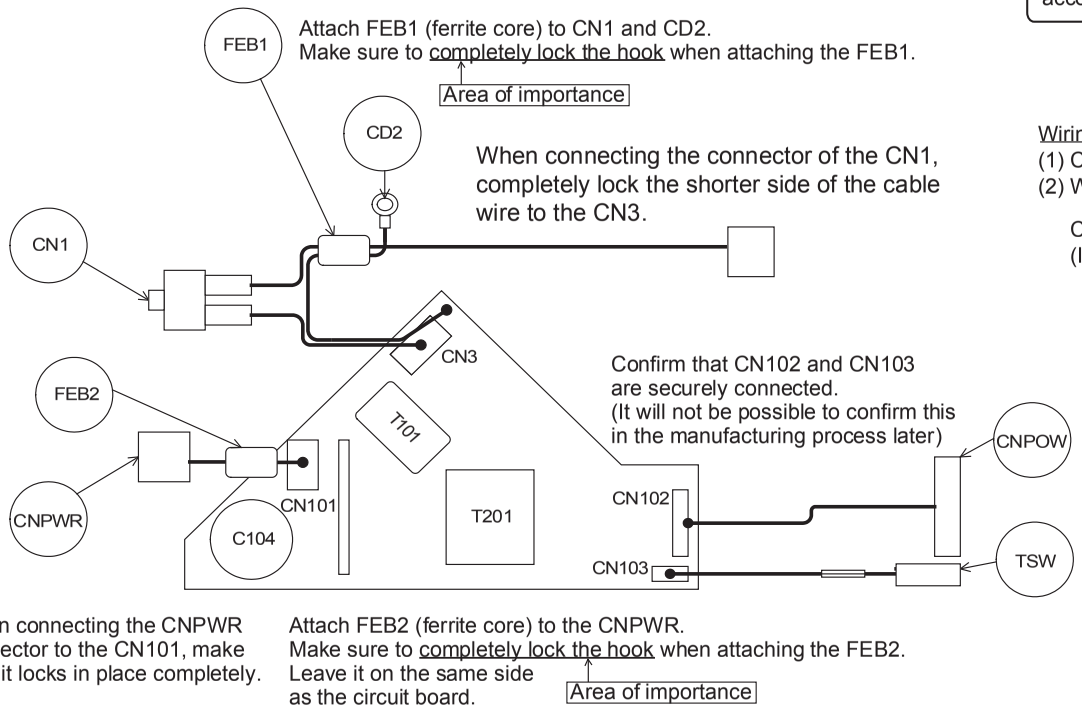
2) By the remote control transmitter
   Press the [LIGHT] button one time, and press the [LIGHT] button again for 3 seconds.



4. Select the WHITE on the STARTUP COLOR menu using the [▲] and [▼] buttons.
5. Next, display the SCREEN MENU by pressing the [◀] button two time, then select the MESSAGE on the SCREEN menu using the [▲] and [▼] buttons and select TURN OFF.
6. Set no signal by disconnecting or select disconnect channel.
7. White blank screen is displayed.

Wiring of power supply circuit/ballast boards

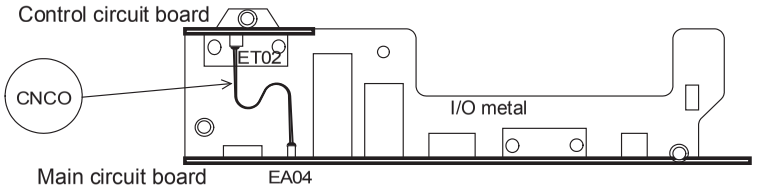
Wiring of the power supply circuit board
(1) Connect the TSW
(2) Connect the CNPOW
(3) Connect the CNPWR, attach FEB2
(4) Connect the CN1, attach FEB1 to CN1 and CD2



When connecting the CNPWR connector to the CN101, make sure it locks in place completely.

Attach FEB2 (ferrite core) to the CNPWR.
Make sure to completely lock the hook when attaching the FEB2.
Leave it on the same side as the circuit board.
Area of importance

Wiring of the control circuit board
(1) Connect the CNCO



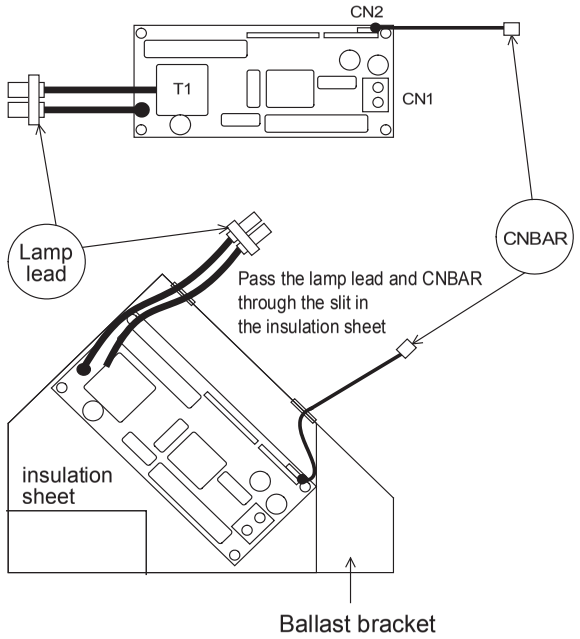
Wiring diagram 1

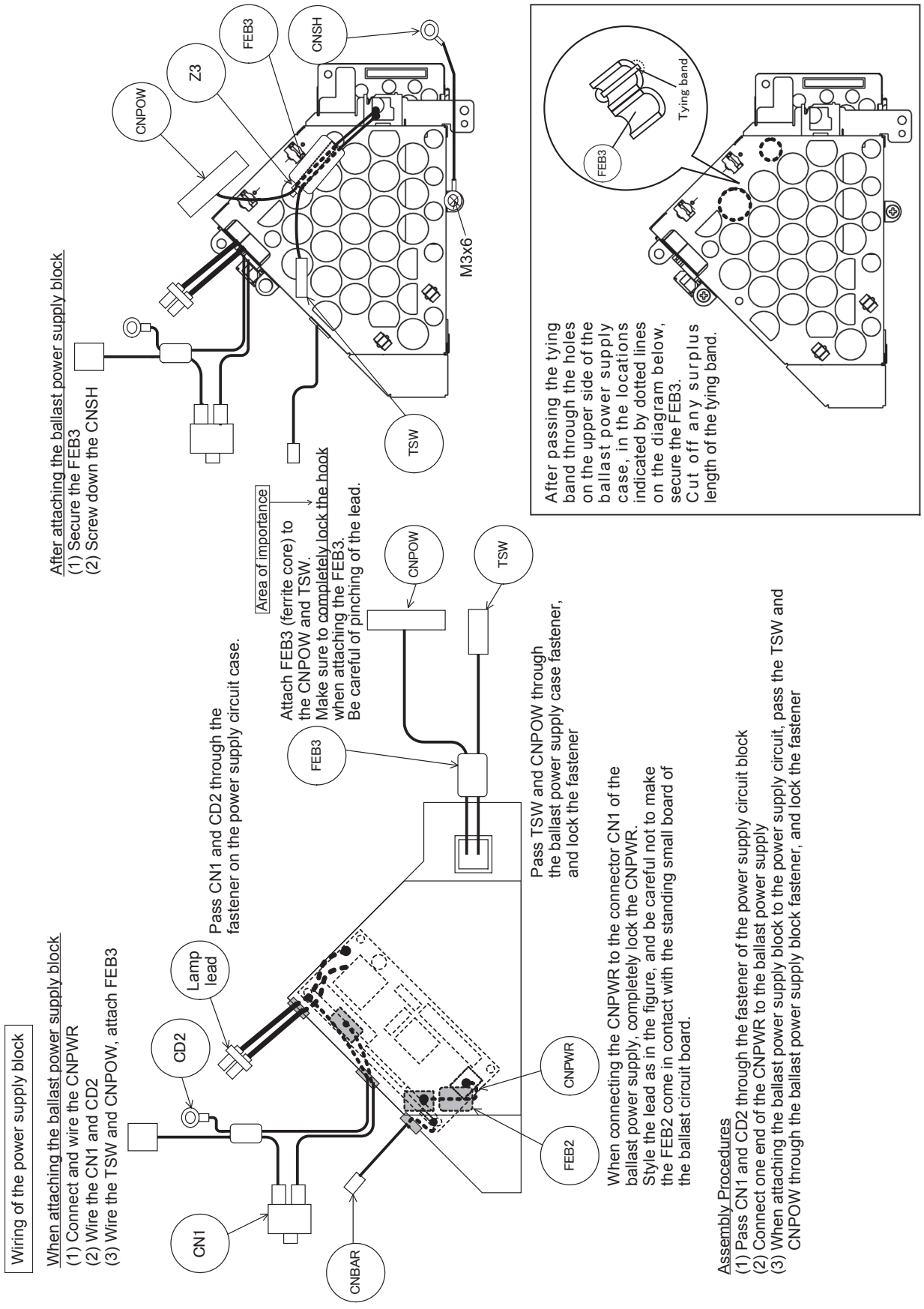
Area of Importance

The operations with this symbol have implications with laws/standards. It is possible to be in violation of these laws/standards in the case that these operations are not carried out according to the instructions. Assemble according to the operation instructions.

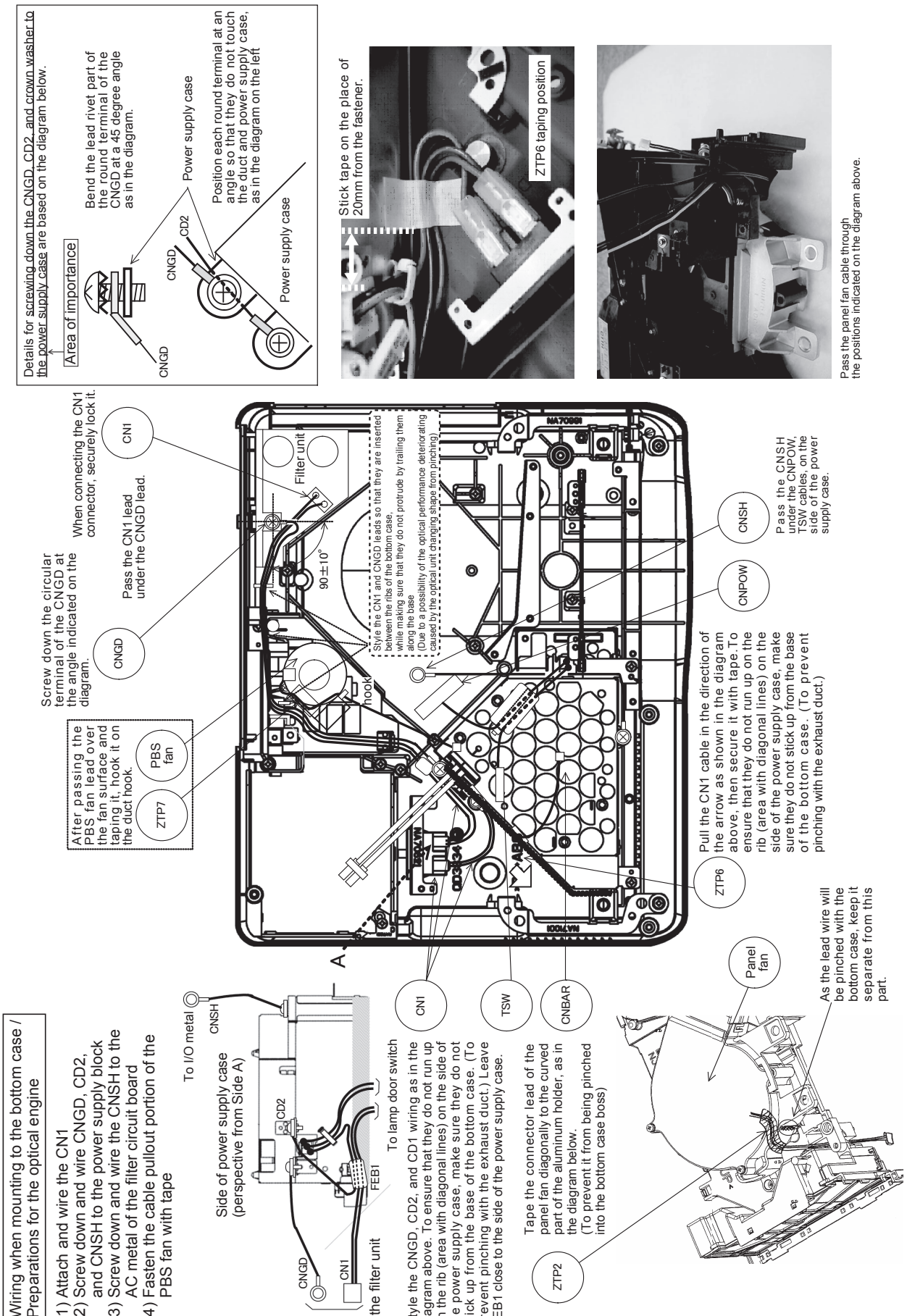
Wiring of the ballast power supply board
(1) Connect the CNBAR
(2) Wire the lamp lead and CNBAR

Confirm that the CNBAR is securely connected
(It will not be possible to confirm this in the manufacturing process later)

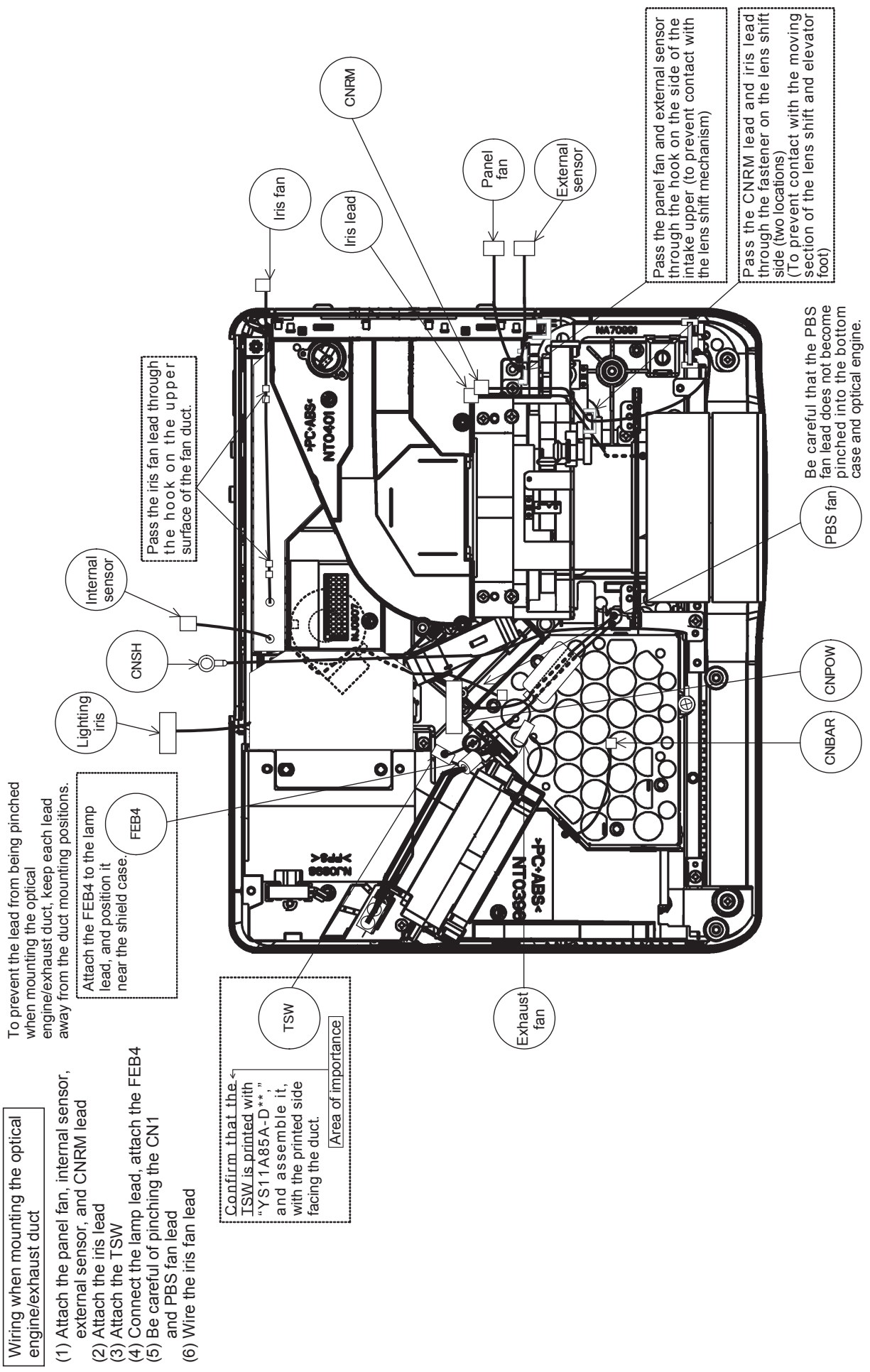



Wiring of the power supply block
When attaching the ballast power supply block
(1) Connect and wire the CNPWR
(2) Wire the CN1 and CD2
(3) Wire the TSW and CNPOW, attach FEB3
CN1
CD2
Lamp lead
CNBAR
FEB2
CNPWR
Pass CN1 and CD2 through the fastener on the power supply circuit case.
When connecting the CNPWR to the connector CN1 of the ballast power supply, completely lock the CNPWR. Style the lead as in the figure, and be careful not to make the FEB2 come in contact with the standing small board of the ballast circuit board.
Area of importance
FEB3
Attach FEB3 (ferrite core) to the CNPOW and TSW. Make sure to completely lock the hook when attaching the FEB3. Be careful of pinching of the lead.
CNPOW
TSW
Pass TSW and CNPOW through the ballast power supply case fastener, and lock the fastener
After attaching the ballast power supply block
(1) Secure the FEB3
(2) Screw down the CNSH
CNPOW
Z3
FEB3
CNSH
M3x6
TSW
After passing the tying band through the holes on the upper side of the ballast power supply case, in the locations indicated by dotted lines on the diagram below, secure the FEB3. Cut off any surplus length of the tying band.
FEB3
Tying band
Assembly Procedures
(1) Pass CN1 and CD2 through the fastener of the power supply circuit block
(2) Connect one end of the CNPWR to the ballast power supply
(3) When attaching the ballast power supply block to the power supply circuit, pass the TSW and CNPOW through the ballast power supply block fastener, and lock the fastener

Wiring diagram 2


Wiring when mounting to the bottom case / Preparations for the optical engine
(1) Attach and wire the CN1
(2) Screw down and wire CNGD, CD2, and CNSH to the power supply block
(3) Screw down and wire the CNSH to the AC metal of the filter circuit board
(4) Fasten the cable pullout portion of the PBS fan with tape
To I/O metal
CNSH
Side of power supply case (perspective from Side A)
CD2
FEB1
To lamp door switch
CNGD
CN1
To the filter unit
Style the CNGD, CD2, and CD1 wiring as in the diagram above. To ensure that they do not run up on the rib (area with diagonal lines) on the side of the power supply case, make sure they do not stick up from the base of the bottom case. (To prevent pinching with the exhaust duct.) Leave FEB1 close to the side of the power supply case.
Tape the connector lead of the panel fan diagonally to the curved part of the aluminum holder, as in the diagram below. (To prevent it from being pinched into the bottom case boss)
ZTP2
Panel fan
As the lead wire will be pinched with the bottom case, keep it separate from this part.
CN1
TSW
CNBAR
ZTP6
Pull the CN1 cable in the direction of the arrow as shown in the diagram above, then secure it with tape. To ensure that they do not run up on the rib (area with diagonal lines) on the side of the power supply case, make sure they do not stick up from the base of the bottom case. (To prevent pinching with the exhaust duct.)
CNPOW
CNSH
Pass the CNSH under the CNPOW, TSW cables, on the side of the power supply case.
A
Filter unit
hook
90±10°
Style the CN1 and CNGD leads so that they are inserted between the ribs of the bottom case, while making sure that they do not protrude by trailing them along the base (Due to a possibility of the optical performance deteriorating caused by the optical unit changing shape from pinching).
Screw down the circular terminal of the CNGD at the angle indicated on the diagram.
When connecting the CN1 connector, securely lock it.
CN1
CNGD
Pass the CN1 lead under the CNGD lead.
After passing the PBS fan lead over the fan surface and taping it, hook it on the duct hook.
ZTP7
PBS fan
Details for screwing down the CNGD, CD2, and crown washer to the power supply case are based on the diagram below.
Area of importance
CNGD
CD2
Power supply case
Bend the lead rivet part of the round terminal of the CNGD at a 45 degree angle as in the diagram.
Position each round terminal at an angle so that they do not touch the duct and power supply case, as in the diagram on the left
Power supply case
Stick tape on the place of 20mm from the fastener.
ZTP6 taping position
Pass the panel fan cable through the positions indicated on the diagram above.

Wiring diagram 3

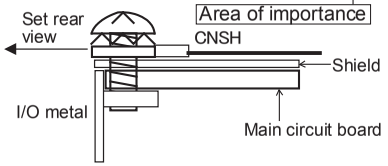

Wiring when mounting the optical engine/exhaust duct
(1) Attach the panel fan, internal sensor, external sensor, and CNRM lead
(2) Attach the iris lead
(3) Attach the TSW
(4) Connect the lamp lead, attach the FEB4
(5) Be careful of pinching the CN1 and PBS fan lead
(6) Wire the iris fan lead
To prevent the lead from being pinched when mounting the optical engine/exhaust duct, keep each lead away from the duct mounting positions.
Attach the FEB4 to the lamp lead, and position it near the shield case.
Confirm that the TSW is printed with "YS11A85A-D**," and assemble it, with the printed side facing the duct.
Area of importance
Pass the iris fan lead through the hook on the upper surface of the fan duct.
Pass the panel fan and external sensor through the hook on the side of the intake upper (to prevent contact with the lens shift mechanism)
Pass the CNRM lead and iris lead through the fastener on the lens shift side (two locations)
(To prevent contact with the moving section of the lens shift and elevator foot)
Be careful that the PBS fan lead does not become pinched into the bottom case and optical engine.
Iris fan
Iris lead
CNRM
Panel fan
External sensor
Internal sensor
CNSH
Lighting iris
FEB4
TSW
Exhaust fan
PBS fan
CNPOW
CNBAR
+PC-ABS+
NT0401
+PC-ABS+
NT0396
NA7068
NJ0807
NJ0808
XPB4

Wiring diagram 4

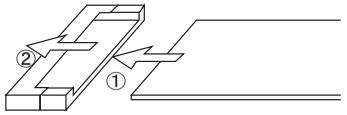
Wiring when mounting the main circuit board

(1) Connect the CNPOW
(2) Connect the CNSH, CNBAR, exhaust fan, PBS fan, internal sensor, iris, CNRM, panel fan, and external sensor
(3) Connect the LCD panel flexible cables
(4) Connect the CNOP (be careful, as it is to be connected to the upper case)

Details for screwing down the CNSH are based on the diagram below.



Details for attaching the flexible cable are based on the diagram below.



(1) Securely insert the flexible cable into the connector base.
(As this connector is of top surface contact, be careful of the insertion direction)
(2) Move the lock hinge in the direction of the arrow and securely lock it.

Tape the lighting iris lead to the upper surface of the iris unit, and make sure that surplus length does not sag. (To prevent pinching when attaching the upper case)

Connect one side of the CNOP to the keypad circuit board of the upper case.
Fold and form the lead of the part closer to the E310 in the direction of the arrow.
(To prevent pinching of the upper case)
Right before attaching the upper case, confirm that the CNOP connector housing is surely inserted to the E310, especially that the pins on the both edges of the connector does not loosen. (To prevent loose connection caused by the stretched cable.)

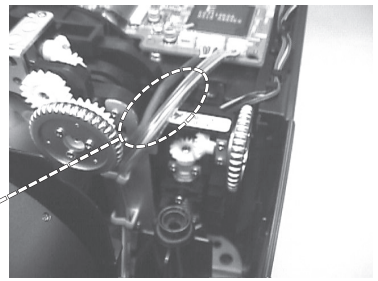
Put the iris fan lead in under the main circuit board.
(To prevent it from pinching with the upper case)

Pass the external sensor, panel fan lead through the hook on the upper surface of the intake upper

Wire the CNBAR lead by passing it under the CNPOW and TSW.
(To prevent surplus cable length from coming in contact with the parts of the primary circuit in the power supply case.)

Pass the CNRM lead and iris lead through the fastener on the side that faces the lens shift machinery.
(To prevent it from pinching with the upper case, and to prevent it from coming in contact with the lens shift machinery and elevator foot)

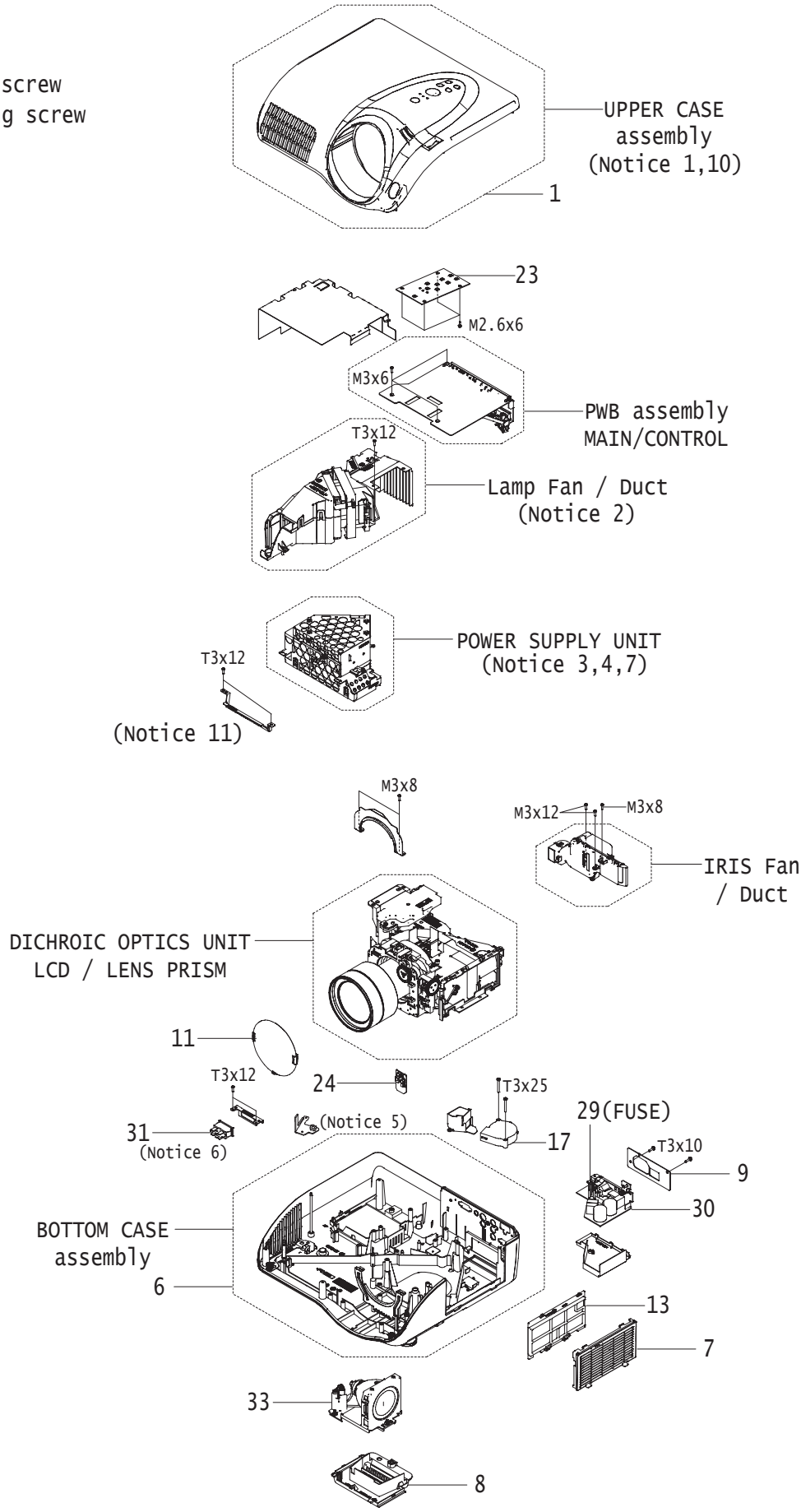
Wire the iris and CNRM lead through the dent on the upper surface of the lens shift. Do not adjust surplus length or tape it down.



Wiring diagram 5

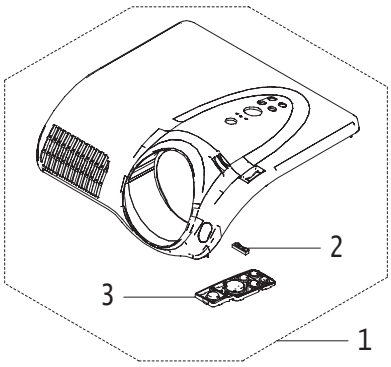
8. Disassembly diagram

M : Meter screw
T : Tapping screw

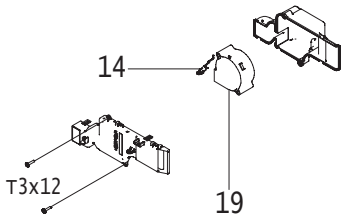


M : Meter screw
T : Tapping screw

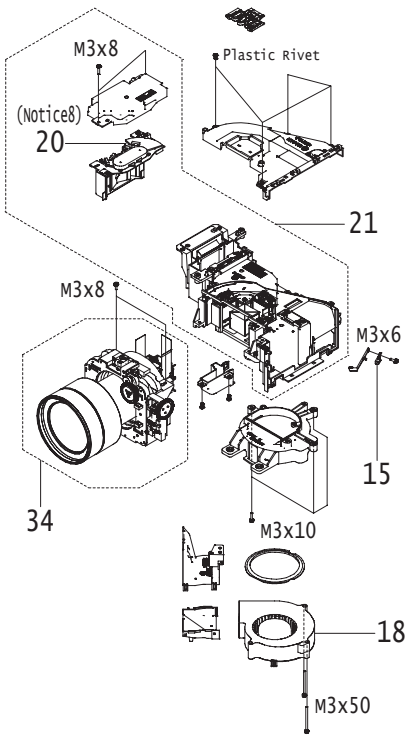
UPPER CASE assembly



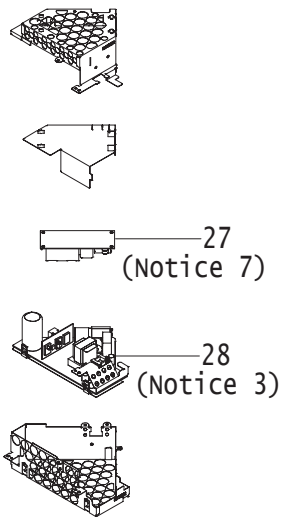
IRIS Fan / Duct



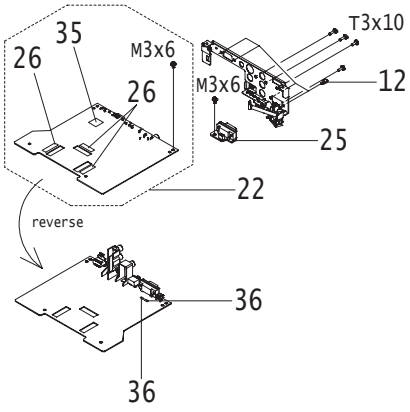
DICHROIC OPTICS UNIT
LCD / LENS PRISM



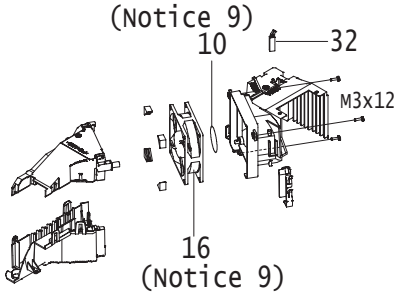
POWER SUPPLY UNIT



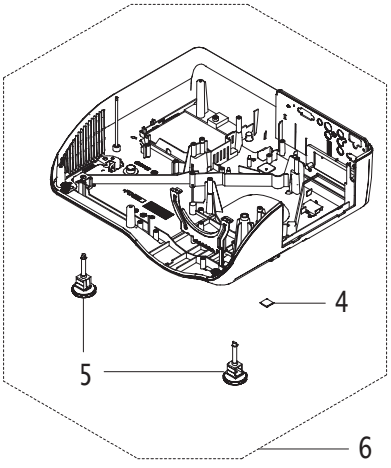
PWB assembly
MAIN / CONTROL



Lamp Fan / Duct

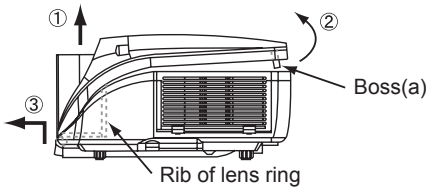


BOTTOM CASE assembly



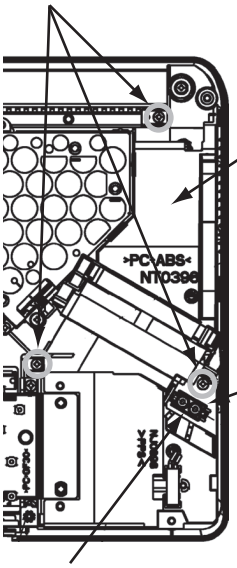
Notice

1. Remove upper case with care as below.
① Shift the lens upmost using lens shift dials.
② Lift up tail of upper case somewhat to avoid interference between boss (a) and lamp house.



③ Next, shift upper case forwards as lifting it up slightly in order that rib of lens ring may not catch upper case.

2. Disconnect lamp lead connector with care as below.
① Remove screws on duct unit and connector cover.

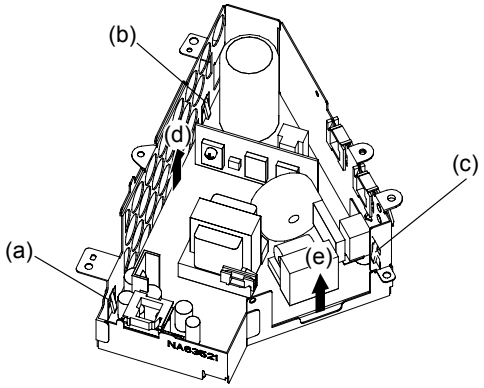


② Pull up duct unit and disconnect connector of lamp lead with lamp socket.

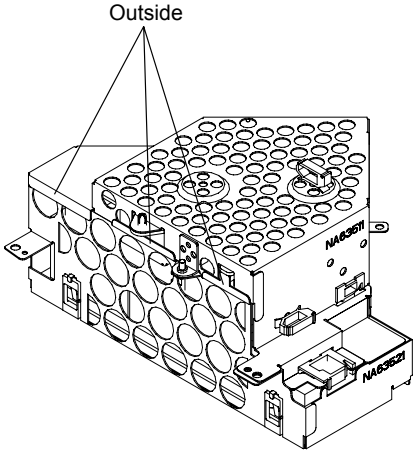
③ Remove connector cover.

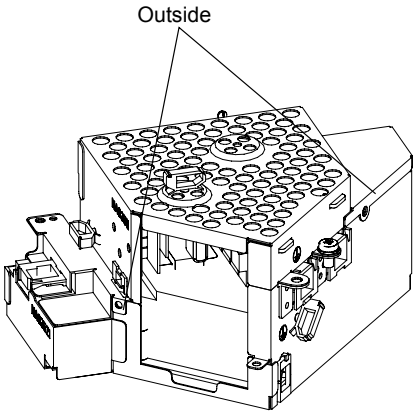
④ Take off connector of lamp lead.

3. To remove power board from shield case, push board in direction of arrow, and unlock catches (a) and (b) on board holders with screwdriver. (Lift board toward (d).)
Unlock catch (c) with screwdriver, and remove holding (e).

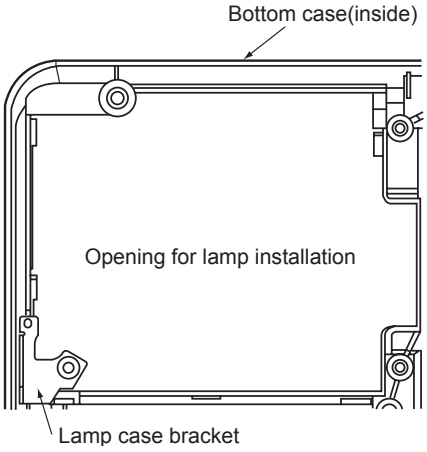


4. Align shield case joints.





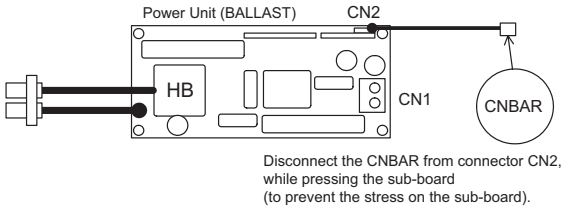
5. Attach lamp case bracket as shown below after removing dichroic optics unit and duct assembly.



6. Never remove connection of the fasten terminals of LAMP DOOR SWITCH.

7. Cautions when removing the power unit (BALLAST)

When removing the cable (CNBAR) connected to Power Unit (BALLAST), there is danger of damaging the small PWB connecting cables.

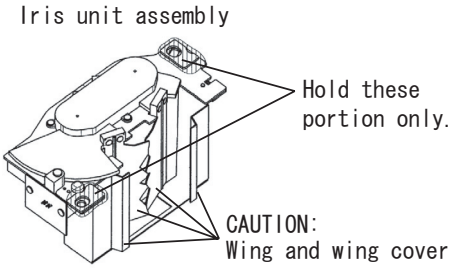


8. Replacing the IRIS unit assembly

⚠CAUTION

- The IRIS unit assembly is so delicate. You should handle it with special care in replacing or maintaining it. If you drop a new IRIS unit assembly, never use it for replacement.
- Be careful not to injure your fingers and hands on the edge of the wing and wing cover of the IRIS unit assembly.

Be sure to hold the shaded portions of IRIS UNIT assembly when dealing with it. Do NOT hold or touch any other portions (frame, motor or movable parts etc.) because their original shape might be changed easily.



9. Replacing the DC fan (lamp)

Be sure to do this operation, before replacing the DC fan (lamp).

1). Preparation

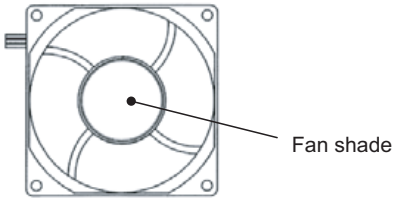
Please check there are all of the necessary parts.

DC fan (lamp) …… 1pcs, Fan shade …… 1pcs

Note: The DC fan (lamp) and the fan shade are two separate service parts. Therefore never fail to order each of parts.

2) How to stick the fan shade

Separate the fan shade from its base, and stick the fan shade to the center portion on the intake side of the DC fan (lamp) as shown below carefully. Incorrect operations such as might cause decline of fan a noise and /or cooling performance.



View from the intake side of DC fan (lamp)

⚠CAUTION

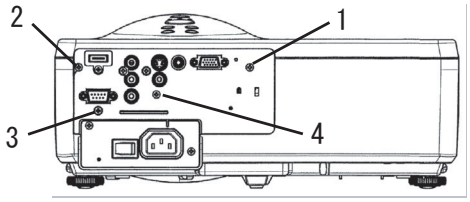
- If you drop a new DC fan (lamp), never use it for replacement.

10. Cautions when attaching the main board and upper case

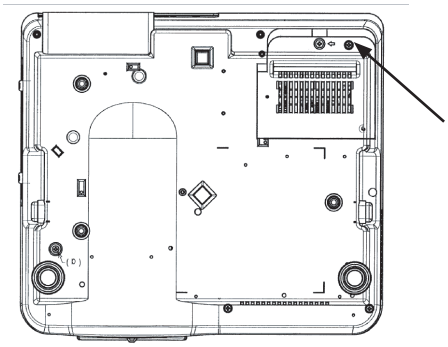
When attaching the main board and upper case, there is danger of damaging the connector connecting cables.

1) Secure the main board by tightening screws on the circuit board surface. Then tighten the screws on the rear side of the projector by following the next step.

2) Tighten the screws from the rear panel of the projector in order of 1, 2, 3 and 4 shown in the diagram. If tightening these screws in wrong order, the I/O metal located inside of the terminal panel might strain.



3) Tighten the screws from the bottom case of the projector. Be careful not to leave the screw loosen when assembling the projector.

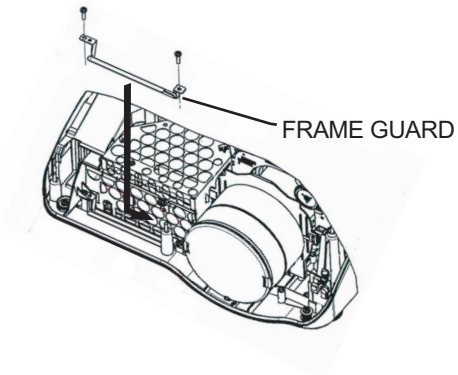


CAUTION:
In some cases that you remove thre upper case with the loosen screw left in this hole, the screw might be latched inside. Be sure to confirm that this screw has been tightened firmly before completing the maintenance.

11. Attaching the frame guard

Press the frame guard towards the projection lens as shown in the diagram on the right, and then screw down it firmly.

⚠CAUTION
• The wrong attachment will cause the projector inside overheating.



12. Cautions in transport of the projector

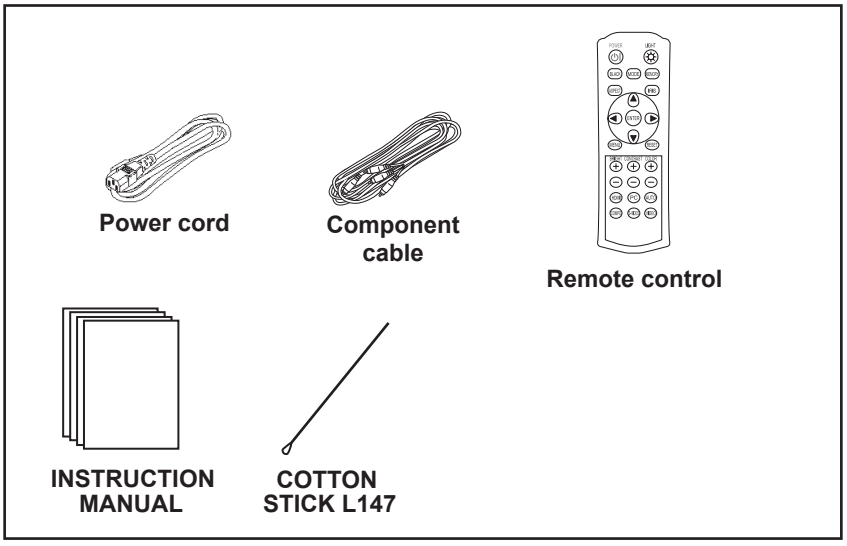
Be sure to insert the LENS SUPPORT into the gap around the projection lens when transporting the projector. Unless the LENS SUPPORT is attached, the shock and vibration in transport can damage the lens shift function.

You can order the LENS SUPPORT when you need it. (See the service part list in the chapter 9.)

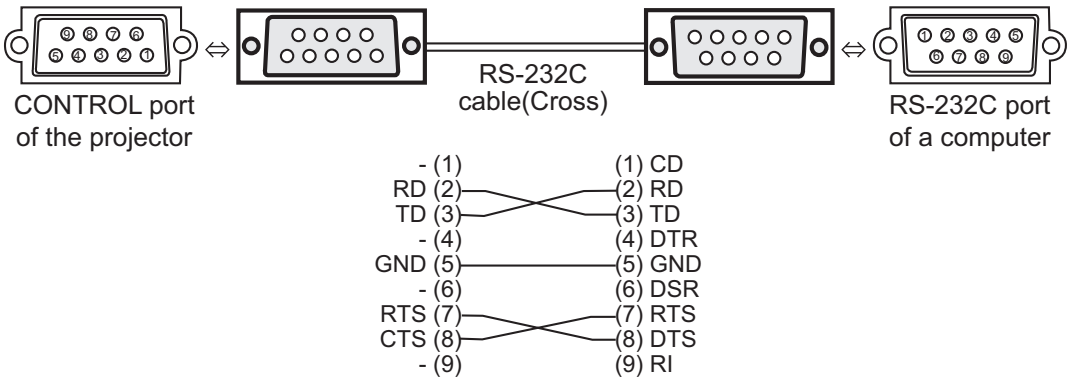
9. Replacement Parts list

PRODUCT SAFETY NOTE : Components marked with a ⚠ have special characteristics important to safety. Before replacing any of there components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the projector through improper servicing.

SYMBOL NO.	PARTS NO.	DESCRIPTION	SYMBOL NO.	PARTS NO.	DESCRIPTION
1	QD51379	UPPER CASE ASS'Y	24	JP09573	PWB ASS'Y REMOTE CONT.
2	MU01971	LED CUSHION	25	JP09575	PWB ASS'Y CONTROL
3	PC06642	CONTROL BUTTON SASSY	26	EA02263R	CPC36 CONNECTOR
4	PE00112	RUBBER FOOT	⚠ 27	HA01401	POWER UNIT(BALLAST)
5	QJ02231	ADJUST FOOT	⚠ 28	HA01661	POWER UNIT(CIRCUIT)
6	QD51415	BOTTOM CASE ASS'Y	⚠ 29	2722448	FUSE
7	QD51612	FILTER COVER ASS'Y	⚠ 30	HA01671	FILTER UNIT
8	QD51432	LAMP DOOR ASS'Y	⚠ 31	FE00505	LAMP DOOR SWITCH
9	PM30471	AC PANEL	⚠ 32	FH00351	THERMAL SW ASSY C11H2
10	MU01201	FAN SHADE	⚠ 33	DT00665	LAMP UNIT ASS'Y
11	PH34461	LENS CAP ASSY	34	UX25201	C11H2 LCD/LENS PRISM ASS'Y(SERVICE or REPAIR)
12	MJ02872	D-SUB SCREW	35	CK52931U	ADV7403BSTZ-110
13	NJ22632	AIR FILTER ASSY	36	CK51461R	SN74LVC1G97DCKR
14	AZ00255	THERMISTOR 100			
15	AZ00252	THERMISTOR 230		EV01673	POWER SUPPLY CORD(EUROPE TYPE) W/CORE
⚠ 16	GS01242	DC FAN(LAMP)		EV01683	POWER SUPPLY CORD(UK TYPE) W/CORE
⚠ 17	GS01291	DC FAN(PBS)		HL02104	REMOTE CONTROL UNIT
⚠ 18	GS01271	DC FAN(PANEL)		EW07741	COMPONENT CABLE W/CORE
⚠ 19	GS01301	DC FAN(IRIS)		QR69291	INSTRUCTION MANUAL SASSY
20	KS21351	IRIS UNIT ASY C11H2		SU03453	LENS SUPPORT C11H2 L
21	UX25191	C11H2 DICHROIC OPTICS UNIT		NX08061	COTTON STICK L147
22	JP09791	C11H2 PWB ASS'Y MAIN H-S			
23	JP09572	PWB ASS'Y KEYPAD			



10. RS-232C communication



● Connecting the cable

(1) Turn off the projector and the computer power supplies.

(2) Connect the CONTROL port of the projector with a RS-232C port of the computer by a RS-232C cable(Cross). Use the cable that fulfills the specification shown in the previous page.

(3) Turn on the computer power supply and after the computer has started up, turn on the projector power supply.

● Communications setting

19200 bps, 8N1

1. Protocol

Consist of header (7 bytes) + Command data (6 bytes)

2. Header

BE + EF + 03 + 06 + 00 + CRC_low + CRC_high

CRC_low: Lower byte of CRC flag for command data

CRC_high: Upper byte of CRC flag for command data

3. Command Data

Command Data Chart

byte_0	byte_1	byte_2	byte_3	byte_4	byte_5
Action		Type		Setting code	
low	high	low	high	low	high

Action (byte_0 - 1)

Action	Classification	Content
1	Set	Change setting to desired value.
2	Get	Read projector internal setup value.
4	Increment	Increment setup value by 1.
5	Decrement	Decrement setup value by 1.
6	Execute	Run a command.

Requesting projector status (Get command)

(1) Send the request code Header + Command data (‘02H’+‘00H’+ type (2 bytes)+ ‘00H’+‘00H’) from the computer to the projector.
(2) The projector returns the response code ‘1DH’+ data (2 bytes) to the computer.

Changing the projector settings (Set command)

(1) Send the setting code Header + Command data (‘01H’+‘00H’+ type (2 bytes) + setting code (2 bytes)) from the computer to the projector.
(2) The projector changes the setting based on the above setting code.
(3) The projector returns the response code ‘06H’ to the computer.

Using the projector default settings (Reset Command)

(1) The computer sends the default setting code Header + Command data (‘06H’+ ‘00H’+ type (2 bytes) + ‘00H’+‘00H’) to the projector.
(2) The projector changes the specified setting to the default value.
(3) The projector returns the response code ‘06H’ to the computer.

Increasing the projector setting value (Increment command)

(1) The computer sends the increment code Header + Command data (‘04H’+ ‘00H’+ type (2 bytes) +‘00H’+ ‘00H’) to the projector.
(2) The projector in creases the setting value on the above setting code.
(3) The projector returns the response code ‘06H’ to the computer.

Decreasing the projector setting value (Decrement command)

(1) The computer sends the decrement code Header + Command data (‘05H’+ ‘00H’+ type (2 bytes) +‘00H’ + ‘00H’) to the projector.
(2) The projector decreases the setting value on the above setting code.
(3) The projector returns the response code ‘06H’ to the computer.

When the projector cannot understand the received command

When the projector cannot understand the received command, the error code ‘15H’ is sent back to the computer.

Sometimes the projector cannot properly receive the command. In such a case, the command is not executed and the error code ‘15H’ is sent back to the computer. If this error code is returned, send the same command again.

When the projector cannot execute the received command.

When the projector cannot execute the received command, the error code ‘1cH’ + ‘xxxxH’ is sent back to the computer. When the data length is greater than indicated by the data length code, the projector ignore the excess data code.

Conversely when the data length is shorter than indicated by the data length code, an error code will be returned to the computer.

NOTE • Operation cannot be guaranteed when the projector receives an undefined command or data.
• Provide an interval of at least 40ms between the response code and any other code.
• The projector outputs test data when the power supply is switched ON, and when the lamp is lit. Ignore this data.
• Commands are not accepted during warm-up.

● Command data chart

Names	Operation Type		Header			CRC	Command Data		
							Action	Type	Setting Code
Power	Set	Turn off	BE EF	03	06 00	2A D3	01 00	00 60	00 00
		Turn on	BE EF	03	06 00	BA D2	01 00	00 60	01 00
	Get		BE EF	03	06 00	19 D3	02 00	00 60	00 00
			(Example return) 00 00 (Off) 01 00 (On) 02 00 (Cool down)						
Input Source	Set	HDMI	BE EF	03	06 00	0E D2	01 00	00 20	03 00
		COMPUTER	BE EF	03	06 00	FE D2	01 00	00 20	00 00
		VIDEO	BE EF	03	06 00	6E D3	01 00	00 20	01 00
		S-VIDEO	BE EF	03	06 00	9E D3	01 00	00 20	02 00
		COMPONENT	BE EF	03	06 00	AE D1	01 00	00 20	05 00
	Get		BE EF	03	06 00	CD D2	02 00	00 20	00 00
Error Status	Get		BE EF	03	06 00	D9 D8	02 00	20 60	00 00
			(Example return) 00 00 (Normal) 01 00 (Cover error) 02 00 (Fan error) 03 00 (Lamp error) 04 00 (Temp error) 05 00 (Air flow error) 07 00 (Cool error) 08 00 (Filter error)						
BRIGHTNESS	Get		BE EF	03	06 00	89 D2	02 00	03 20	00 00
	Increment		BE EF	03	06 00	EF D2	04 00	03 20	00 00
	Decrement		BE EF	03	06 00	3E D3	05 00	03 20	00 00
BRIGHTNESS Reset	Execute		BE EF	03	06 00	58 D3	06 00	00 70	00 00
CONTRAST	Get		BE EF	03	06 00	FD D3	02 00	04 20	00 00
	Increment		BE EF	03	06 00	9B D3	04 00	04 20	00 00
	Decrement		BE EF	03	06 00	4A D2	05 00	04 20	00 00
CONTRAST Reset	Execute		BE EF	03	06 00	A4 D2	06 00	01 70	00 00
MODE	Set	NORMAL	BE EF	03	06 00	23 F6	01 00	BA 30	00 00
		CINEMA LOW	BE EF	03	06 00	B3 F7	01 00	BA 30	01 00
		MUSIC	BE EF	03	06 00	43 F7	01 00	BA 30	02 00
		SPORTS	BE EF	03	06 00	D3 F6	01 00	BA 30	03 00
		CINEMA HIGH	BE EF	03	06 00	E3 F4	01 00	BA 30	04 00
	Get		BE EF	03	06 00	10 F6	02 00	BA 30	00 00
			(Example return) 00 00 (Normal) 01 00 (Cinema Low) 02 00 (Music) 03 00 (Sports) 04 00 (Cinema High) 10 00 (Custom)						
GAMMA	Set	STANDARD	BE EF	03	06 00	07 E9	01 00	A1 30	20 00
		LOW	BE EF	03	06 00	97 E8	01 00	A1 30	21 00
		HIGH	BE EF	03	06 00	67 E8	01 00	A1 30	22 00
		Hi-CONTRAST	BE EF	03	06 00	F7 E9	01 00	A1 30	23 00
		CUSTOM+1	BE EF	03	06 00	07 FD	01 00	A1 30	10 00
		CUSTOM-2	BE EF	03	06 00	97 FC	01 00	A1 30	11 00
		CUSTOM-3	BE EF	03	06 00	67 FC	01 00	A1 30	12 00
		CUSTOM-4	BE EF	03	06 00	F7 FD	01 00	A1 30	13 00
	Get		BE EF	03	06 00	F4 F0	02 00	A1 30	00 00
GAMMA REFERENCE SELECT	Set	STANDARD	BE EF	03	06 00	43 E9	01 00	A2 30	20 00
		LOW	BE EF	03	06 00	D3 E8	01 00	A2 30	21 00
		HIGH	BE EF	03	06 00	23 E8	01 00	A2 30	22 00
		Hi-CONTRAST	BE EF	03	06 00	B3 E9	01 00	A2 30	23 00
	Get		BE EF	03	06 00	B0 F0	02 00	A2 30	00 00

Names	Operation Type		Header			CRC	Command Data		
							Action	Type	Setting Code
User Gamma Pattern	Set	Off	BE EF	03	06 00	FB FA	01 00	80 30	00 00
		9 steps gray scale	BE EF	03	06 00	6B FB	01 00	80 30	01 00
		15 steps gray scale	BE EF	03	06 00	9B FB	01 00	80 30	02 00
		Ramp	BE EF	03	06 00	0B FA	01 00	80 30	03 00
	Get		BE EF	03	06 00	C8 FA	02 00	80 30	00 00
User Gamma Point 1	Get		BE EF	03	06 00	08 FE	02 00	90 30	00 00
	Increment		BE EF	03	06 00	6E FE	04 00	90 30	00 00
	Decrement		BE EF	03	06 00	BF FF	05 00	90 30	00 00
User Gamma Point 1 Reset	Execute		BE EF	03	06 00	58 C2	06 00	50 70	00 00
User Gamma Point 2	Get		BE EF	03	06 00	F4 FF	02 00	91 30	00 00
	Increment		BE EF	03	06 00	92 FF	04 00	91 30	00 00
	Decrement		BE EF	03	06 00	43 FE	05 00	91 30	00 00
User Gamma Point 2 Reset	Execute		BE EF	03	06 00	A4 C3	06 00	51 70	00 00
User Gamma Point 3	Get		BE EF	03	06 00	B0 FF	02 00	92 30	00 00
	Increment		BE EF	03	06 00	D6 FF	04 00	92 30	00 00
	Decrement		BE EF	03	06 00	07 FE	05 00	92 30	00 00
User Gamma Point 3 Reset	Execute		BE EF	03	06 00	E0 C3	06 00	52 70	00 00
User Gamma Point 4	Get		BE EF	03	06 00	4C FE	02 00	93 30	00 00
	Increment		BE EF	03	06 00	2A FE	04 00	93 30	00 00
	Decrement		BE EF	03	06 00	FB FF	05 00	93 30	00 00
User Gamma Point 4 Reset	Execute		BE EF	03	06 00	1C C2	06 00	53 70	00 00
User Gamma Point 5	Get		BE EF	03	06 00	38 FF	02 00	94 30	00 00
	Increment		BE EF	03	06 00	5E FF	04 00	94 30	00 00
	Decrement		BE EF	03	06 00	8F FE	05 00	94 30	00 00
User Gamma Point 5 Reset	Execute		BE EF	03	06 00	68 C3	06 00	54 70	00 00
User Gamma Point 6	Get		BE EF	03	06 00	C4 FE	02 00	95 30	00 00
	Increment		BE EF	03	06 00	A2 FE	04 00	95 30	00 00
	Decrement		BE EF	03	06 00	73 FF	05 00	95 30	00 00
User Gamma Point 6 Reset	Execute		BE EF	03	06 00	94 C2	06 00	55 70	00 00
User Gamma Point 7	Get		BE EF	03	06 00	80 FE	02 00	96 30	00 00
	Increment		BE EF	03	06 00	E6 FE	04 00	96 30	00 00
	Decrement		BE EF	03	06 00	37 FF	05 00	96 30	00 00
User Gamma Point 7 Reset	Execute		BE EF	03	06 00	D0 C2	06 00	56 70	00 00
User Gamma Point 8	Get		BE EF	03	06 00	7C FF	02 00	97 30	00 00
	Increment		BE EF	03	06 00	1A FF	04 00	97 30	00 00
	Decrement		BE EF	03	06 00	CB FE	05 00	97 30	00 00
User Gamma Point 8 Reset	Execute		BE EF	03	06 00	2C C3	06 00	57 70	00 00
User Gamma Point 9	Get		BE EF	03	06 00	68 FC	02 00	98 30	00 00
	Increment		BE EF	03	06 00	0E FC	04 00	98 30	00 00
	Decrement		BE EF	03	06 00	DF FD	05 00	98 30	00 00
User Gamma Point 9 Reset	Execute		BE EF	03	06 00	38 C0	06 00	58 70	00 00

Names	Operation Type		Header			CRC	Command Data		
							Action	Type	Setting Code
COLOR TEMP	Set	6500K	BE EF	03	06 00	AB C5	01 00	B0 30	41 00
		7500K	BE EF	03	06 00	0B C3	01 00	B0 30	4B 00
		9300K	BE EF	03	06 00	6B CD	01 00	B0 30	5D 00
		Hi-BRIGHT	BE EF	03	06 00	3B F2	01 00	B0 30	08 00
		CUSTOM-1	BE EF	03	06 00	3B F8	01 00	B0 30	10 00
		CUSTOM-2	BE EF	03	06 00	AB F9	01 00	B0 30	11 00
		CUSTOM-3	BE EF	03	06 00	5B F9	01 00	B0 30	12 00
		CUSTOM-4	BE EF	03	06 00	CB F8	01 00	B0 30	13 00
	Get		BE EF	03	06 00	C8 F5	02 00	B0 30	00 00
COLOR TEMP CUSTOM REFERNCE	Set	6500K	BE EF	03	06 00	37 C6	01 00	B9 30	41 00
		7500K	BE EF	03	06 00	97 C0	01 00	B9 30	4B 00
		9300K	BE EF	03	06 00	F7 CE	01 00	B9 30	5D 00
		Hi-BRIGHT	BE EF	03	06 00	A7 F1	01 00	B9 30	08 00
	Get		BE EF	03	06 00	54 F6	02 00	B9 30	00 00
COLOR TEMP HIGH R	Get		BE EF	03	06 00	34 F4	02 00	B1 30	00 00
	Increment		BE EF	03	06 00	52 F4	04 00	B1 30	00 00
	Decrement		BE EF	03	06 00	83 F5	05 00	B1 30	00 00
COLOR TEMP HIGH R Reset	Execute		BE EF	03	06 00	10 C6	06 00	46 70	00 00
COLOR TEMP HIGH G	Get		BE EF	03	06 00	70 F4	02 00	B2 30	00 00
	Increment		BE EF	03	06 00	16 F4	04 00	B2 30	00 00
	Decrement		BE EF	03	06 00	C7 F5	05 00	B2 30	00 00
COLOR TEMP HIGH G Reset	Execute		BE EF	03	06 00	EC C7	06 00	47 70	00 00
COLOR TEMP HIGH B	Get		BE EF	03	06 00	8C F5	02 00	B3 30	00 00
	Increment		BE EF	03	06 00	EA F5	04 00	B3 30	00 00
	Decrement		BE EF	03	06 00	3B F4	05 00	B3 30	00 00
COLOR TEMP HIGH B Reset	Execute		BE EF	03	06 00	F8 C4	06 00	48 70	00 00
COLOR TEMP MID R	Get		BE EF	03	06 00	98 F6	02 00	BC 30	00 00
	Increment		BE EF	03	06 00	FE F6	04 00	BC 30	00 00
	Decrement		BE EF	03	06 00	2F F7	05 00	BC 30	00 00
COLOR TEMP MID R Reset	Execute		BE EF	03	06 00	58 FE	06 00	90 70	00 00
COLOR TEMP MID G	Get		BE EF	03	06 00	64 F7	02 00	BD 30	00 00
	Increment		BE EF	03	06 00	02 F7	04 00	BD 30	00 00
	Decrement		BE EF	03	06 00	D3 F6	05 00	BD 30	00 00
COLOR TEMP MID G Reset	Execute		BE EF	03	06 00	A4 FF	06 00	91 70	00 00
COLOR TEMP MID B	Get		BE EF	03	06 00	20 F7	02 00	BE 30	00 00
	Increment		BE EF	03	06 00	46 F7	04 00	BE 30	00 00
	Decrement		BE EF	03	06 00	97 F6	05 00	BE 30	00 00
COLOR TEMP MID B Reset	Execute		BE EF	03	06 00	E0 FF	06 00	92 70	00 00

Names	Operation Type		Header			CRC	Command Data		
							Action	Type	Setting Code
COLOR TEMP LOW R	Get		BE EF	03	06 00	04 F5	02 00	B5 30	00 00
	Increment		BE EF	03	06 00	62 F5	04 00	B5 30	00 00
	Decrement		BE EF	03	06 00	B3 F4	05 00	B5 30	00 00
COLOR TEMP LOW R Reset	Execute		BE EF	03	06 00	40 C5	06 00	4A 70	00 00
COLOR TEMP LOW G	Get		BE EF	03	06 00	40 F5	02 00	B6 30	00 00
	Increment		BE EF	03	06 00	26 F5	04 00	B6 30	00 00
	Decrement		BE EF	03	06 00	F7 F4	05 00	B6 30	00 00
COLOR TEMP LOW G Reset	Execute		BE EF	03	06 00	BC C4	06 00	4B 70	00 00
COLOR TEMP LOW B	Get		BE EF	03	06 00	BC F4	02 00	B7 30	00 00
	Increment		BE EF	03	06 00	DA F4	04 00	B7 30	00 00
	Decrement		BE EF	03	06 00	0B F5	05 00	B7 30	00 00
COLOR TEMP LOW B Reset	Execute		BE EF	03	06 00	C8 C5	06 00	4C 70	00 00
COLOR	Get		BE EF	03	06 00	B5 72	02 00	02 22	00 00
	Increment		BE EF	03	06 00	D3 72	04 00	02 22	00 00
	Decrement		BE EF	03	06 00	02 73	05 00	02 22	00 00
COLOR Reset	Execute		BE EF	03	06 00	80 D0	06 00	0A 70	00 00
TINT	Get		BE EF	03	06 00	49 73	02 00	03 22	00 00
	Increment		BE EF	03	06 00	2F 73	04 00	03 22	00 00
	Decrement		BE EF	03	06 00	FE 72	05 00	03 22	00 00
TINT Reset	Execute		BE EF	03	06 00	7C D1	06 00	0B 70	00 00
SHARPNESS	Get		BE EF	03	06 00	F1 72	02 00	01 22	00 00
	Increment		BE EF	03	06 00	97 72	04 00	01 22	00 00
	Decrement		BE EF	03	06 00	46 73	05 00	01 22	00 00
SHARPNESS Reset	Execute		BE EF	03	06 00	C4 D0	06 00	09 70	00 00
MY MEMORY Load	Set	1	BE EF	03	06 00	0E D7	01 00	14 20	00 00
		2	BE EF	03	06 00	9E D6	01 00	14 20	01 00
		3	BE EF	03	06 00	6E D6	01 00	14 20	02 00
		4	BE EF	03	06 00	FE D7	01 00	14 20	03 00
MY MEMORY Save	Set	1	BE EF	03	06 00	F2 D6	01 00	15 20	00 00
		2	BE EF	03	06 00	62 D7	01 00	15 20	01 00
		3	BE EF	03	06 00	92 D7	01 00	15 20	02 00
		4	BE EF	03	06 00	02 D6	01 00	15 20	03 00
PROGRESSIVE	Set	TURN OFF	BE EF	03	06 00	4A 72	01 00	07 22	00 00
		TV	BE EF	03	06 00	DA 73	01 00	07 22	01 00
		FILM	BE EF	03	06 00	2A 73	01 00	07 22	02 00
	Get		BE EF	03	06 00	79 72	02 00	07 22	00 00

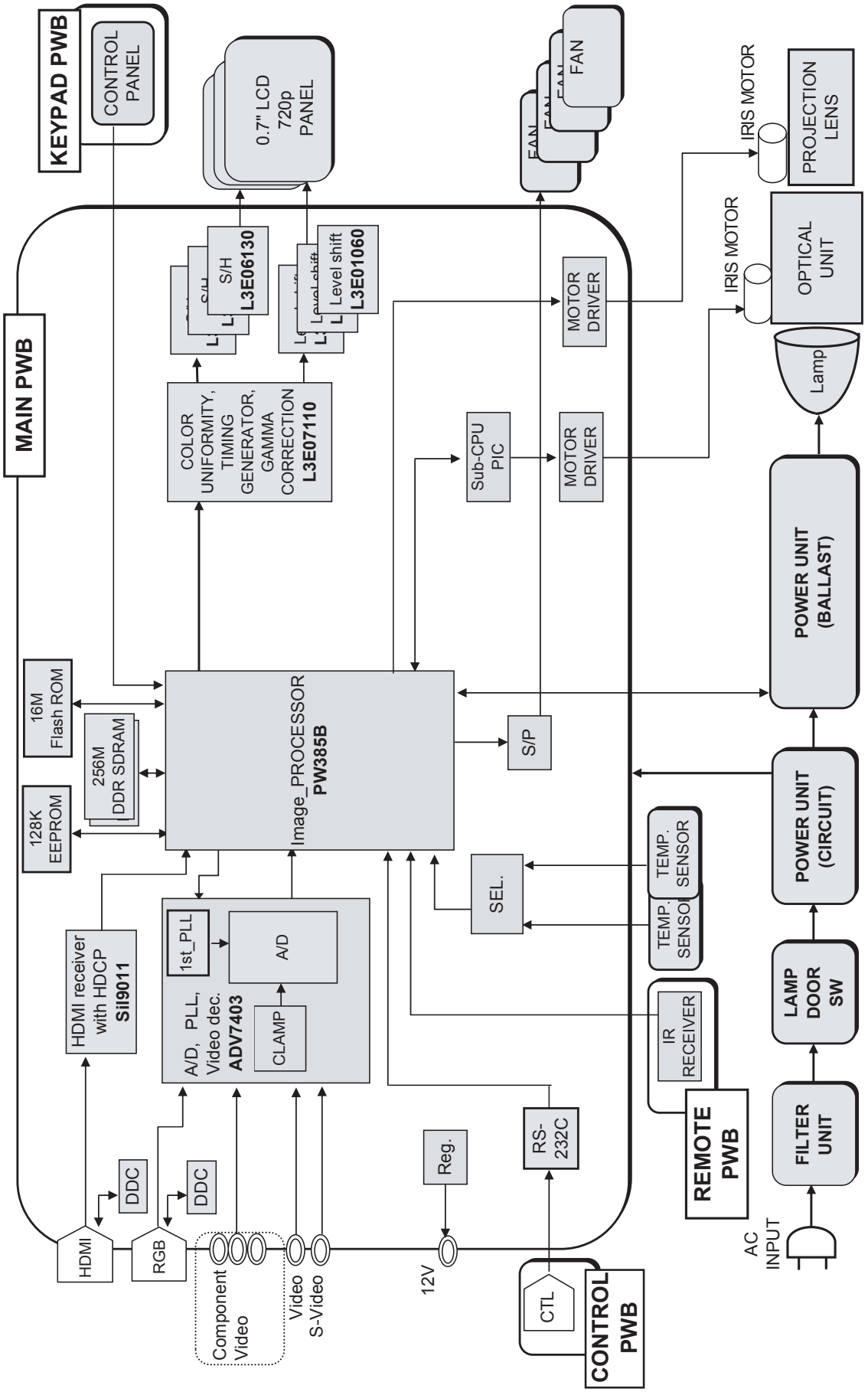
Names	Operation Type		Header			CRC	Command Data		
							Action	Type	Setting Code
ASPECT	Set	4:3	BE EF	03	06 00	9E D0	01 00	08 20	00 00
		16:9	BE EF	03	06 00	0E D1	01 00	08 20	01 00
		WIDE	BE EF	03	06 00	CE D3	01 00	08 20	05 00
		MOVIE1	BE EF	03	06 00	3E D3	01 00	08 20	06 00
		MOVIE2	BE EF	03	06 00	AE D2	01 00	08 20	07 00
		14:9	BE EF	03	06 00	CE D6	01 00	08 20	09 00
		NORMAL	BE EF	03	06 00	5E DD	01 00	08 20	10 00
	Get		BE EF	03	06 00	AD D0	02 00	08 20	00 00
OVER SCAN	Get		BE EF	03	06 00	91 70	02 00	09 22	00 00
	Increment		BE EF	03	06 00	F7 70	04 00	09 22	00 00
	Decrement		BE EF	03	06 00	26 71	05 00	09 22	00 00
OVER SCAN Reset	Execute		BE EF	03	06 00	EC D9	06 00	27 70	00 00
V POSITION	Get		BE EF	03	06 00	0D 83	02 00	00 21	00 00
	Increment		BE EF	03	06 00	6B 83	04 00	00 21	00 00
	Decrement		BE EF	03	06 00	BA 82	05 00	00 21	00 00
V POSITION Reset	Execute		BE EF	03	06 00	E0 D2	06 00	02 70	00 00
H POSITION	Get		BE EF	03	06 00	F1 82	02 00	01 21	00 00
	Increment		BE EF	03	06 00	97 82	04 00	01 21	00 00
	Decrement		BE EF	03	06 00	46 83	05 00	01 21	00 00
H POSITION Reset	Execute		BE EF	03	06 00	1C D3	06 00	03 70	00 00
H PHASE	Get		BE EF	03	06 00	49 83	02 00	03 21	00 00
	Increment		BE EF	03	06 00	2F 83	04 00	03 21	00 00
	Decrement		BE EF	03	06 00	FE 82	05 00	03 21	00 00
H SIZE	Get		BE EF	03	06 00	B5 82	02 00	02 21	00 00
	Increment		BE EF	03	06 00	D3 82	04 00	02 21	00 00
	Decrement		BE EF	03	06 00	02 83	05 00	02 21	00 00
H SIZE Reset	Execute		BE EF	03	06 00	68 D2	06 00	04 70	00 00
AUTO ADJUST	Execute		BE EF	03	06 00	91 D0	06 00	0A 20	00 00

Names	Operation Type		Header			CRC	Command Data		
							Action	Type	Setting Code
COLOR SPACE	Set	AUTO	BE EF	03	06 00	0E 72	01 00	04 22	00 00
		RGB	BE EF	03	06 00	9E 73	01 00	04 22	01 00
		SMPTE240	BE EF	03	06 00	6E 73	01 00	04 22	02 00
		REC709	BE EF	03	06 00	FE 72	01 00	04 22	03 00
		REC601	BE EF	03	06 00	CE 70	01 00	04 22	04 00
	Get		BE EF	03	06 00	3D 72	02 00	04 22	00 00
COMPONENT	Set	COMPONENT	BE EF	03	06 00	4A D7	01 00	17 20	00 00
		SCART RGB	BE EF	03	06 00	DA D6	01 00	17 20	01 00
	Get		BE EF	03	06 00	79 D7	02 00	17 20	00 00
VIDEO FORMAT	Set	AUTO	BE EF	03	06 00	9E 75	01 00	00 22	0A 00
		NTSC	BE EF	03	06 00	FE 71	01 00	00 22	04 00
		PAL	BE EF	03	06 00	6E 70	01 00	00 22	05 00
		SECAM	BE EF	03	06 00	6E 75	01 00	00 22	09 00
		NTSC4.43	BE EF	03	06 00	5E 72	01 00	00 22	02 00
		M-PAL	BE EF	03	06 00	FE 74	01 00	00 22	08 00
		N-PAL	BE EF	03	06 00	0E 71	01 00	00 22	07 00
	Get		BE EF	03	06 00	0D 73	02 00	00 22	00 00
HDMI	Set	AUTO	BE EF	03	06 00	86 D8	01 00	22 20	00 00
		NORMAL	BE EF	03	06 00	16 D9	01 00	22 20	01 00
		ENHANCED	BE EF	03	06 00	E6 D9	01 00	22 20	02 00
	Get		BE EF	03	06 00	B5 D8	02 00	22 20	00 00
FRAME LOCK	Set	TURN OFF	BE EF	03	06 00	CB D6	01 00	14 30	00 00
		TURN ON	BE EF	03	06 00	5B D7	01 00	14 30	01 00
	Get		BE EF	03	06 00	F8 D6	02 00	14 30	00 00
S-ASPECT	Set	TURN OFF	BE EF	03	06 00	1A 71	01 00	0B 22	00 00
		TURN ON	BE EF	03	06 00	8A 70	01 00	0B 22	01 00
	Get		BE EF	03	06 00	29 71	02 00	0B 22	00 00

Names	Operation Type		Header			CRC	Command Data		
							Action	Type	Setting Code
KEYSTONE	Get		BE EF	03	06 00	B9 D3	02 00	07 20	00 00
	Increment		BE EF	03	06 00	DF D3	04 00	07 20	00 00
	Decrement		BE EF	03	06 00	0E D2	05 00	07 20	00 00
KEYSTONE Reset	Execute		BE EF	03	06 00	08 D0	06 00	0C 70	00 00
BLACK	Set	OFF	BE EF	03	06 00	0B 22	01 00	04 33	00 00
		AUTO1	BE EF	03	06 00	9B 23	01 00	04 33	01 00
		AUTO2	BE EF	03	06 00	6B 23	01 00	04 33	02 00
	Get		BE EF	03	06 00	38 22	02 00	04 33	00 00
			(Example return)		00 00 (Off)	01 00 (AUTO1)	02 00 (AUTO2)		
WHISPER	Set	NORMAL	BE EF	03	06 00	3B 23	01 00	00 33	00 00
		WHISPER	BE EF	03	06 00	AB 22	01 00	00 33	01 00
	Get		BE EF	03	06 00	08 23	02 00	00 33	00 00
IRIS	Get		BE EF	03	06 00	B0 22	02 00	02 33	00 00
	Increment		BE EF	03	06 00	D6 22	04 00	02 33	00 00
	Decrement		BE EF	03	06 00	07 23	05 00	02 33	00 00
MIRROR	Set	NORMAL	BE EF	03	06 00	C7 D2	01 00	01 30	00 00
		H:INVERT	BE EF	03	06 00	57 D3	01 00	01 30	01 00
		V:INVERT	BE EF	03	06 00	A7 D3	01 00	01 30	02 00
		H&V:INVERT	BE EF	03	06 00	37 D2	01 00	01 30	03 00
	Get		BE EF	03	06 00	F4 D2	02 00	01 30	00 00
LANGUAGE	Set	ENGLISH	BE EF	03	06 00	F7 D3	01 00	05 30	00 00
		FRANÇAIS	BE EF	03	06 00	67 D2	01 00	05 30	01 00
		DEUTSCH	BE EF	03	06 00	97 D2	01 00	05 30	02 00
		ESPAÑOL	BE EF	03	06 00	07 D3	01 00	05 30	03 00
		ITALIANO	BE EF	03	06 00	37 D1	01 00	05 30	04 00
		NORSK	BE EF	03	06 00	A7 D0	01 00	05 30	05 00
		NEDERLANDS	BE EF	03	06 00	57 D0	01 00	05 30	06 00
		PORTUGUÊS	BE EF	03	06 00	C7 D1	01 00	05 30	07 00
		日本語	BE EF	03	06 00	37 D4	01 00	05 30	08 00
		简体中文	BE EF	03	06 00	A7 D5	01 00	05 30	09 00
		繁體中文	BE EF	03	06 00	37 DE	01 00	05 30	10 00
		한글	BE EF	03	06 00	57 D5	01 00	05 30	0A 00
		SVENSKA	BE EF	03	06 00	C7 D4	01 00	05 30	0B 00
		РУССКИЙ	BE EF	03	06 00	F7 D6	01 00	05 30	0C 00
		SUOMI	BE EF	03	06 00	67 D7	01 00	05 30	0D 00
		POLSKI	BE EF	03	06 00	97 D7	01 00	05 30	0E 00
		TÜRKÇE	BE EF	03	06 00	07 D6	01 00	05 30	0F 00
	Get		BE EF	03	06 00	C4 D3	02 00	05 30	00 00
MENU POSITION H	Get		BE EF	03	06 00	04 D7	02 00	15 30	00 00
	Increment		BE EF	03	06 00	62 D7	04 00	15 30	00 00
	Decrement		BE EF	03	06 00	B3 D6	05 00	15 30	00 00
MENU POSITION H Reset	Execute		BE EF	03	06 00	DC C6	06 00	43 70	00 00
MENU POSITION V	Get		BE EF	03	06 00	40 D7	02 00	16 30	00 00
	Increment		BE EF	03	06 00	26 D7	04 00	16 30	00 00
	Decrement		BE EF	03	06 00	F7 D6	05 00	16 30	00 00
MENU POSITION V Reset	Execute		BE EF	03	06 00	A8 C7	06 00	44 70	00 00

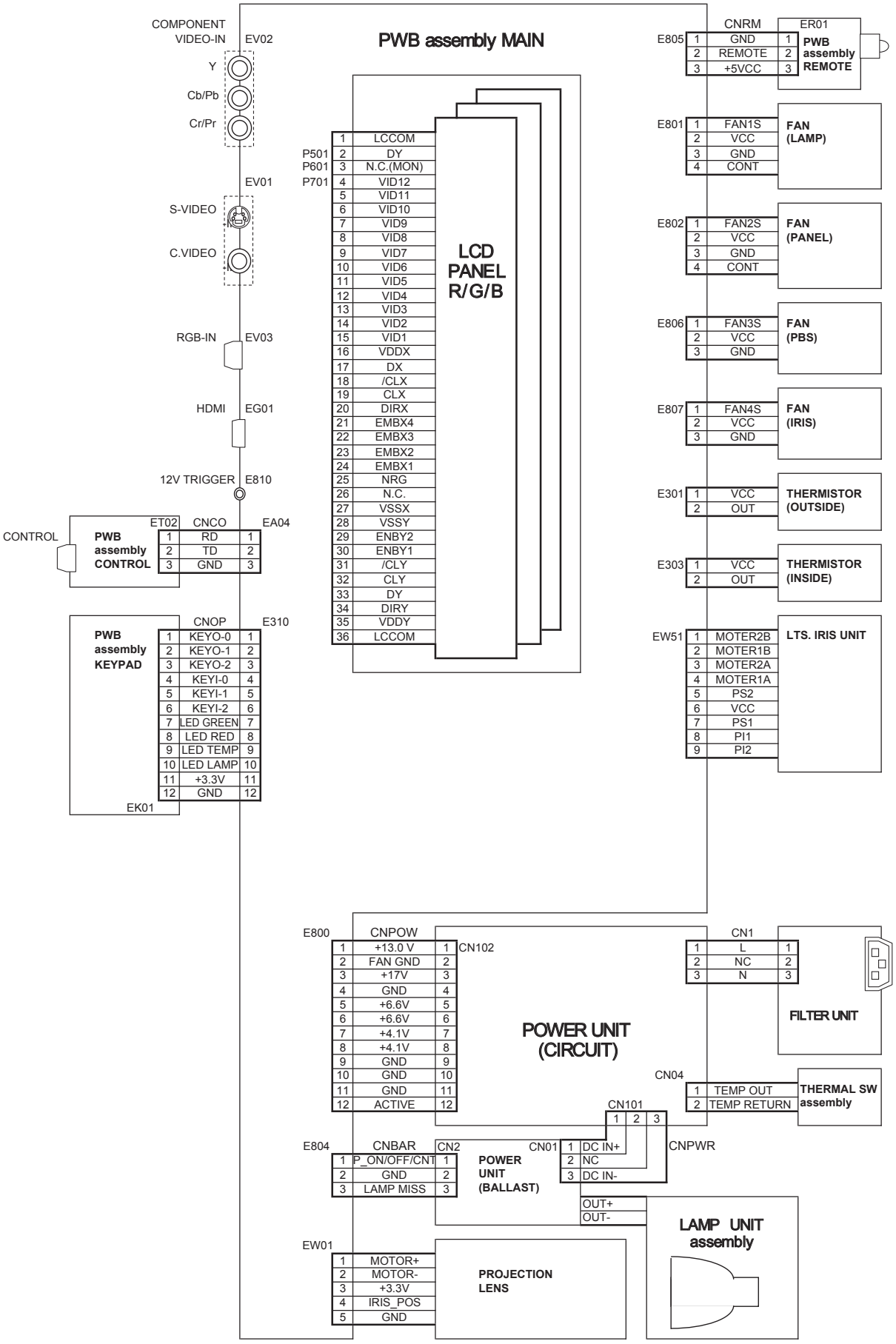
Names	Operation Type		Header			CRC	Command Data		
							Action	Type	Setting Code
OSD BRIGHT	Get		BE EF	03	06 00	A8 D5	02 00	18 30	00 00
	Increment		BE EF	03	06 00	CE D5	04 00	18 30	00 00
	Decrement		BE EF	03	06 00	1F D4	05 00	18 30	00 00
START UP	Set	My Screen	BE EF	03	06 00	CB CB	01 00	04 30	20 00
		ORIGINAL	BE EF	03	06 00	0B D2	01 00	04 30	00 00
		TURN OFF	BE EF	03	06 00	9B D3	01 00	04 30	01 00
	Get		BE EF	03	06 00	38 D2	02 00	04 30	00 00
MY SCREEN LOCK	Set	TURN OFF	BE EF	03	06 00	3B EF	01 00	C0 30	00 00
		TURN ON	BE EF	03	06 00	AB EE	01 00	C0 30	01 00
	Get		BE EF	03	06 00	08 EF	02 00	C0 30	00 00
MESSAGE	Set	TURN OFF	BE EF	03	06 00	8F D6	01 00	17 30	00 00
		TURN ON	BE EF	03	06 00	1F D7	01 00	17 30	01 00
	Get		BE EF	03	06 00	BC D6	02 00	17 30	00 00
DIGITAL SHUTTER	Set	TURN OFF	BE EF	03	06 00	67 D4	01 00	19 30	00 00
		TURN ON	BE EF	03	06 00	F7 D5	01 00	19 30	01 00
	Get		BE EF	03	06 00	54 D4	02 00	19 30	00 00
DIGITAL SHUTTER UPPER WIDTH	Get		BE EF	03	06 00	10 D4	02 00	1A 30	00 00
	Increment		BE EF	03	06 00	76 D4	04 00	1A 30	00 00
	Decrement		BE EF	03	06 00	A7 D5	05 00	1A 30	00 00
DIGITAL SHUTTER UPPER WIDTH Reset	Execute		BE EF	03	06 00	20 C8	06 00	72 70	00 00
DIGITAL SHUTTER BOTTOM WIDTH	Get		BE EF	03	06 00	EC D5	02 00	1B 30	00 00
	Increment		BE EF	03	06 00	8A D5	04 00	1B 30	00 00
	Decrement		BE EF	03	06 00	5B D4	05 00	1B 30	00 00
DIGITAL SHUTTER BOTTOM WIDTH Reset	Execute		BE EF	03	06 00	DC C9	06 00	73 70	00 00
AUTO POWER OFF	Get		BE EF	03	06 00	08 86	02 00	10 31	00 00
	Increment		BE EF	03	06 00	6E 86	04 00	10 31	00 00
	Decrement		BE EF	03	06 00	BF 87	05 00	10 31	00 00
LAMP TIME	Get		BE EF	03	06 00	C2 FF	02 00	90 10	00 00
LAMP TIME Reset	Execute		BE EF	03	06 00	58 DC	06 00	30 70	00 00
FILTER TIME	Get		BE EF	03	06 00	C2 F0	02 00	A0 10	00 00
FILTER TIME Reset	Execute		BE EF	03	06 00	98 C6	06 00	40 70	00 00

11. Block diagram



Block diagram

12. Connector connection diagram



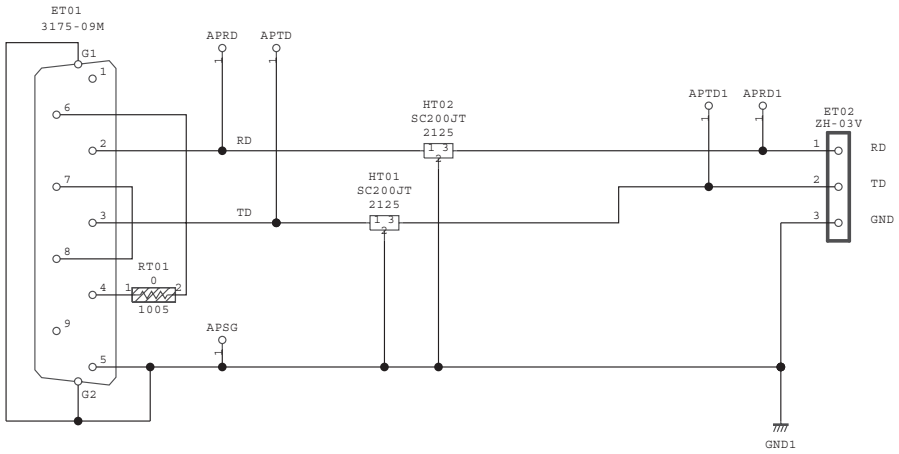
Connector connection diagram

13. Basic circuit diagram

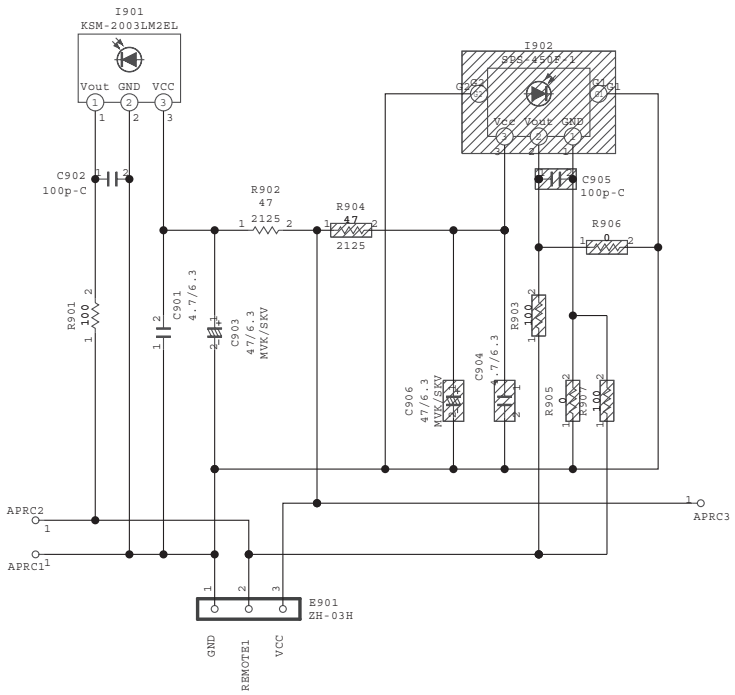
Parts with hatching are not mounted.

confidential

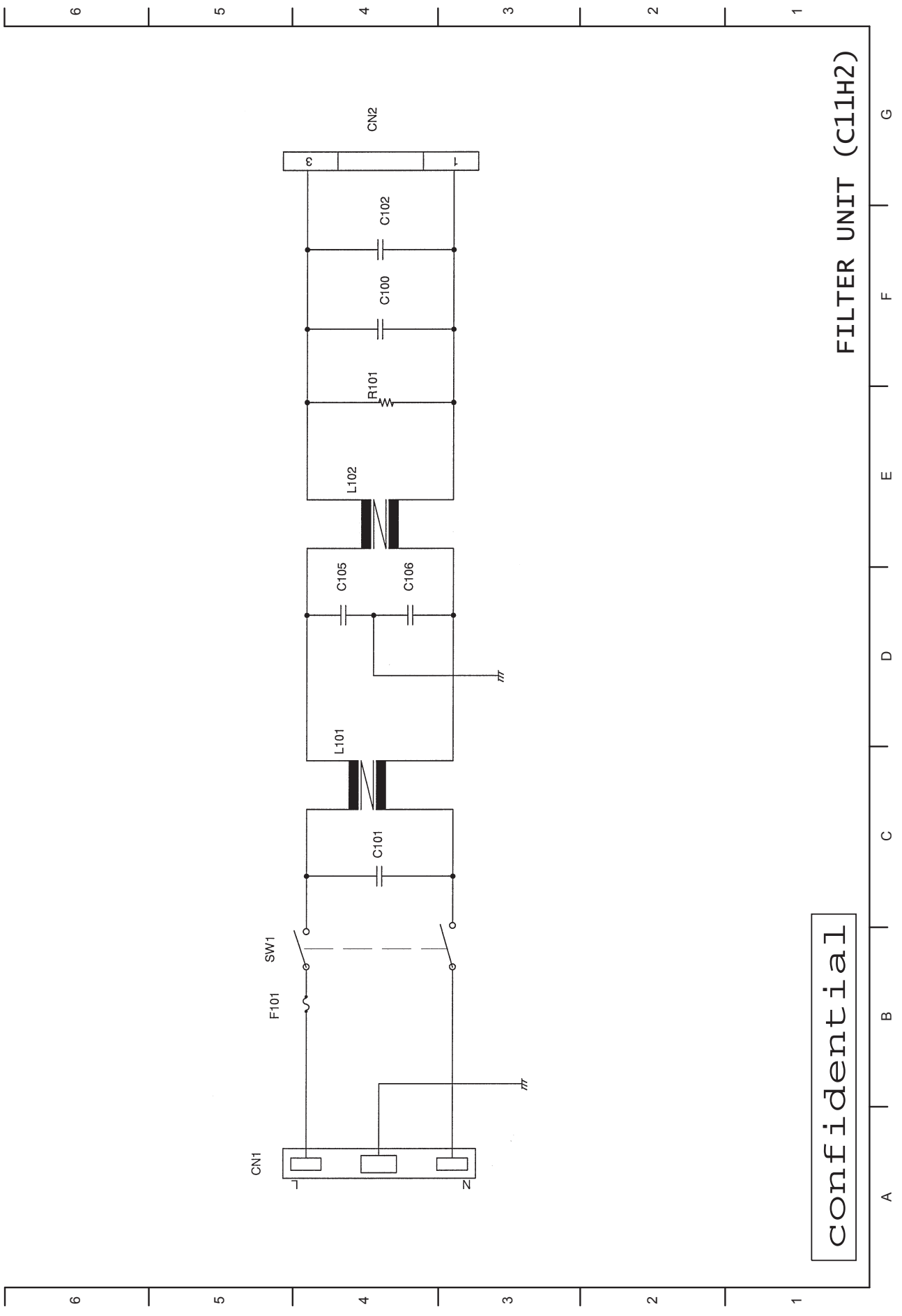
RS232C



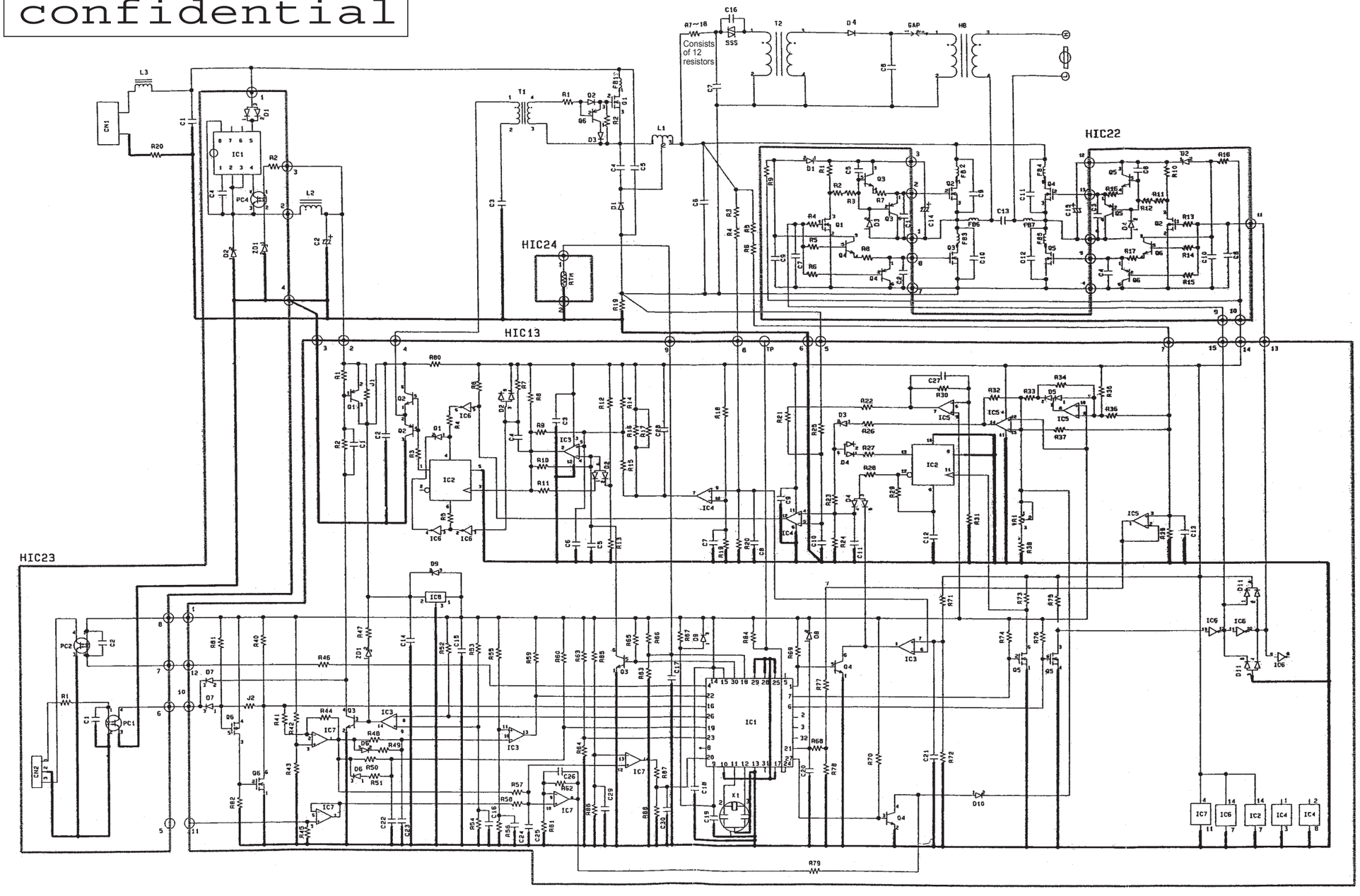
PWB assembly CONTROL (C11H2)



PWB assembly REMOTE (C11H2)


FILTER UNIT (C11H2)
confidential
CN2
3
1
C102
C100
R101
L102
C105
C106
L101
C101
SW1
F101
CN1
L
N

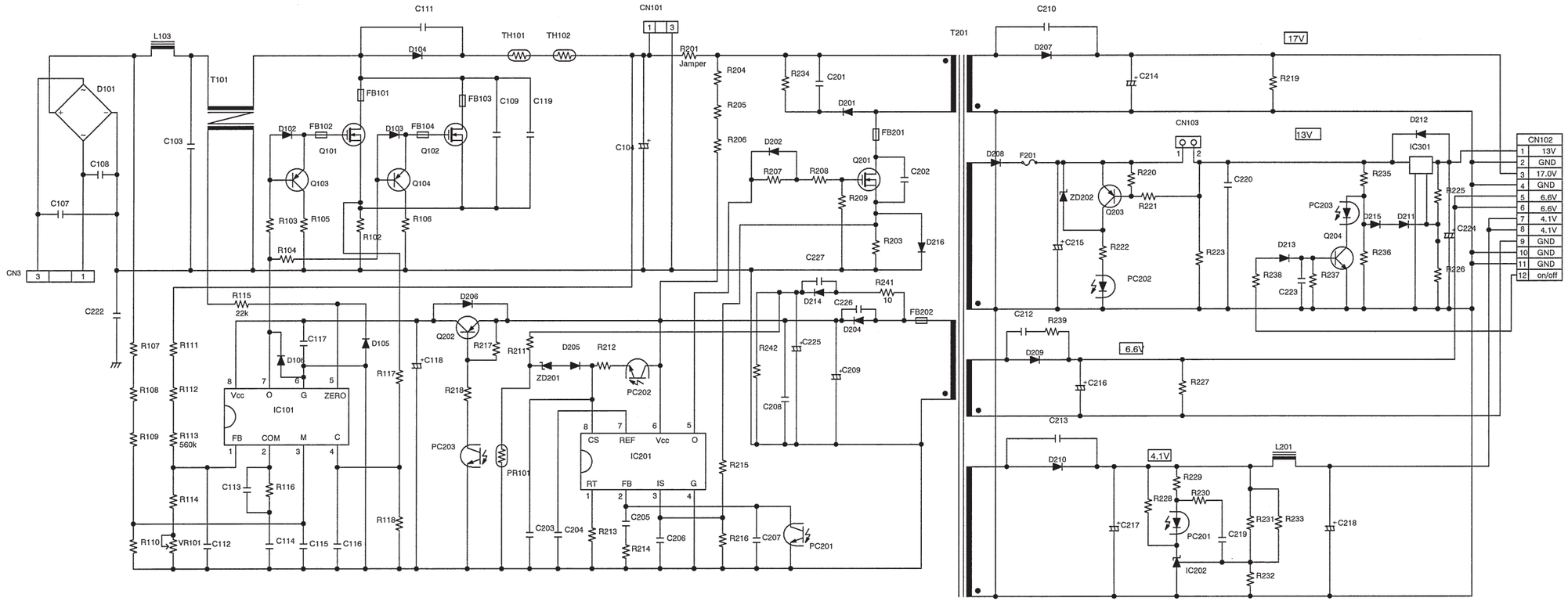
confidential



⚠ Warning
For handling of the circuit diagram, refer to the warning on the cover.

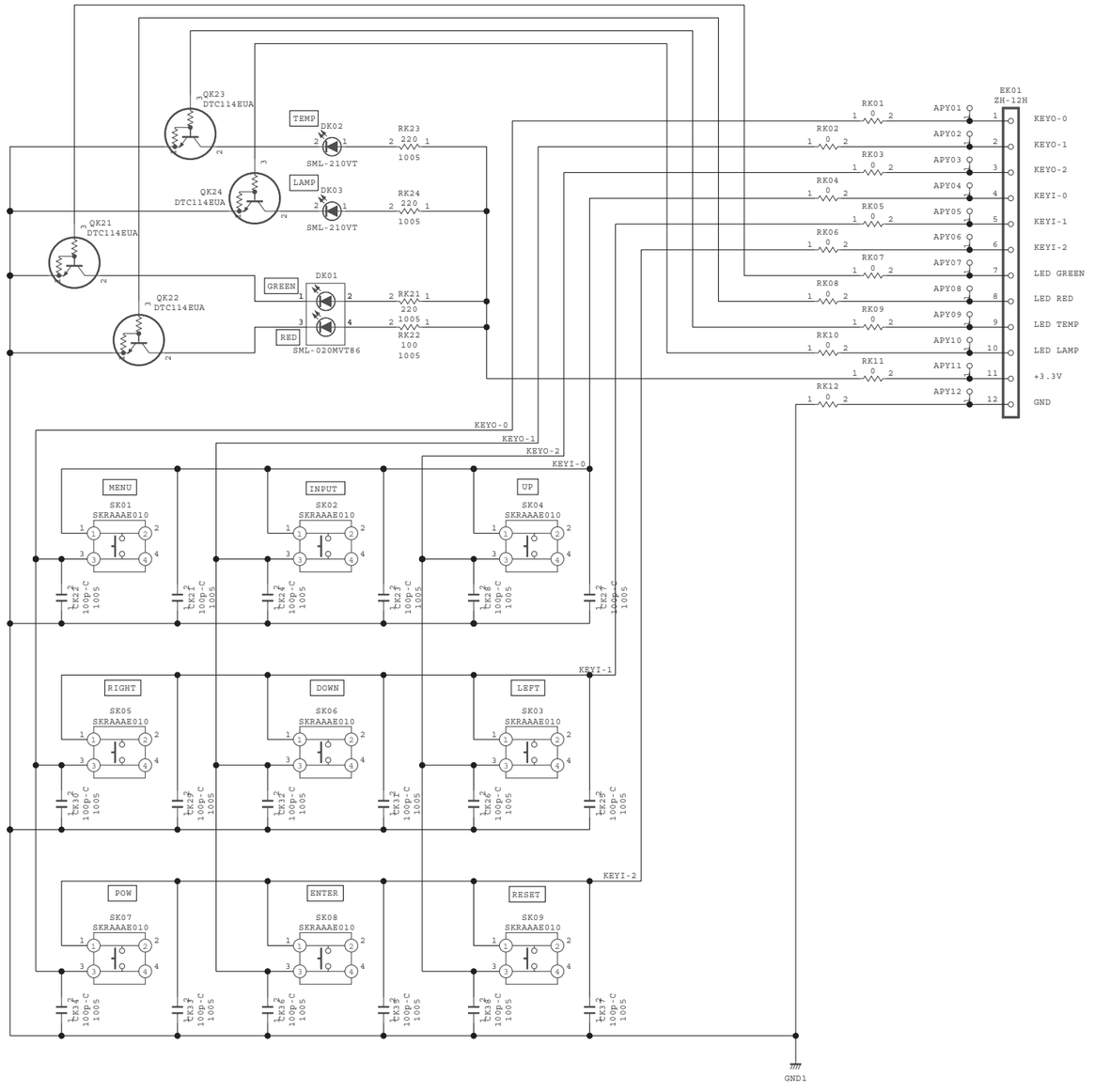
POWER UNIT (BALLAST) (C11H2)

confidential



⚠ Warning
For handling of the circuit diagram, refer to the warning on the cover.

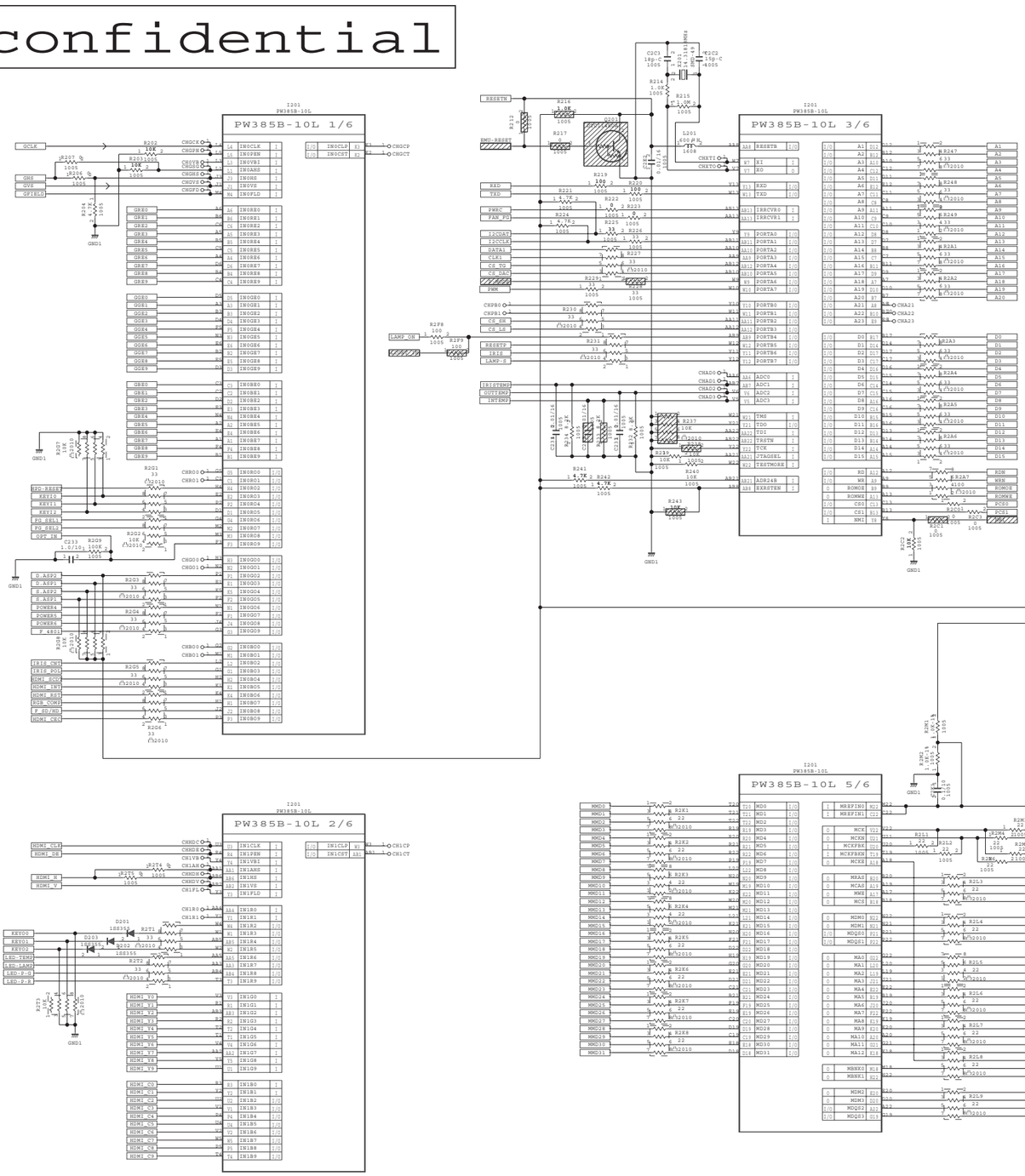
POWER UNIT (CIRCUIT) (C11H2)



confidential

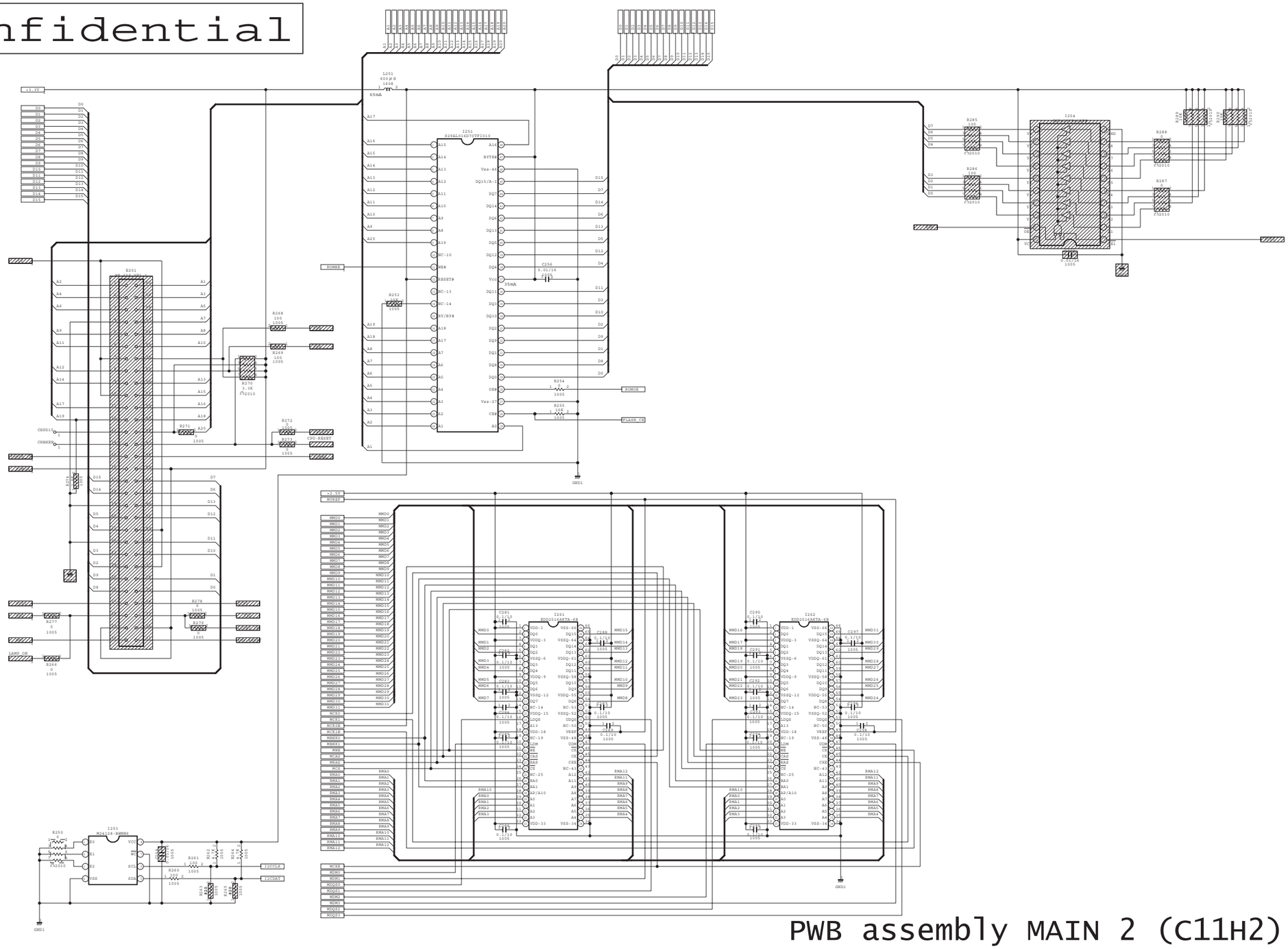
PWB assembly KEYPAD (C11H2)

confidential

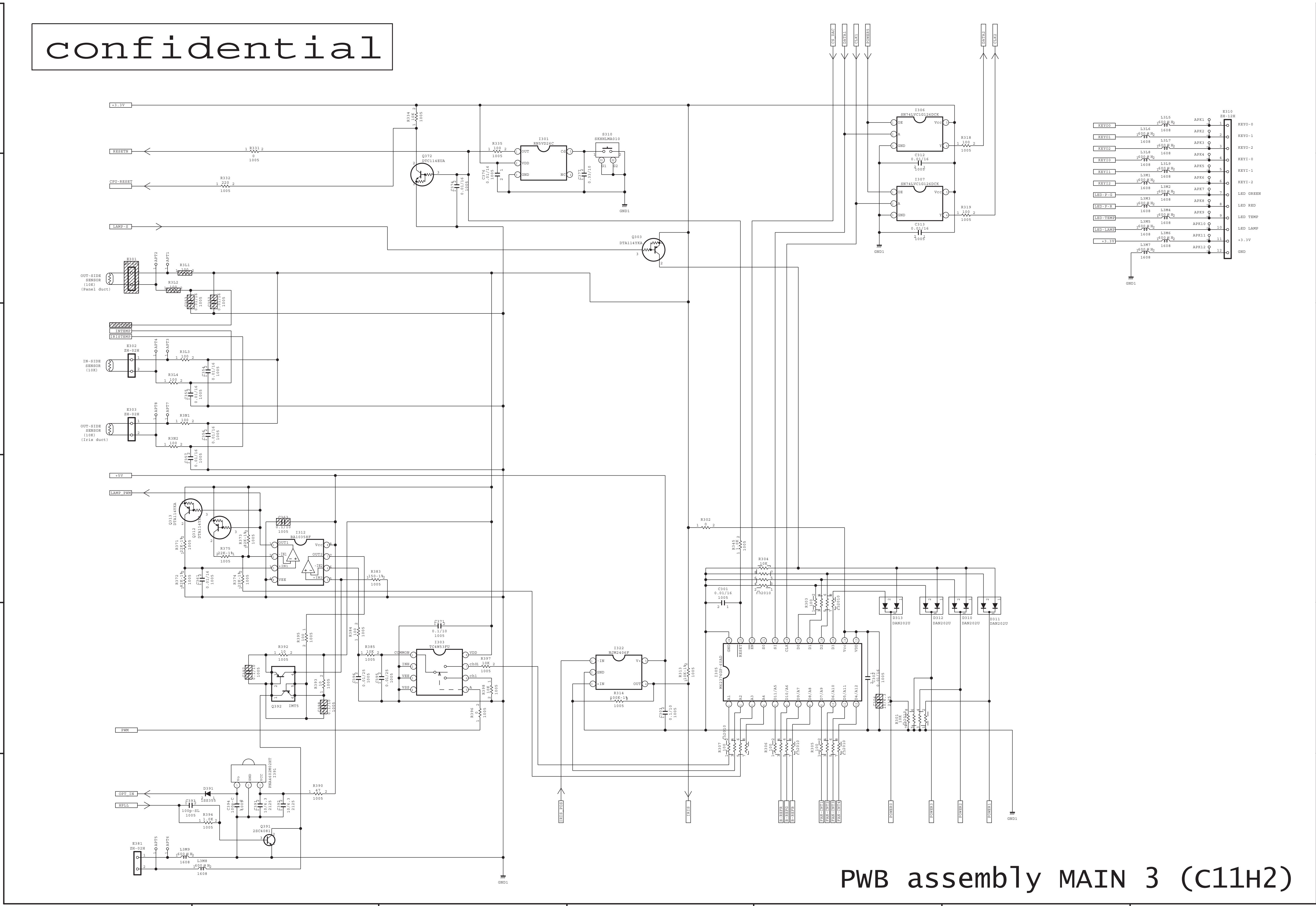


PWB assembly MAIN 1 (C11H2)

confidential

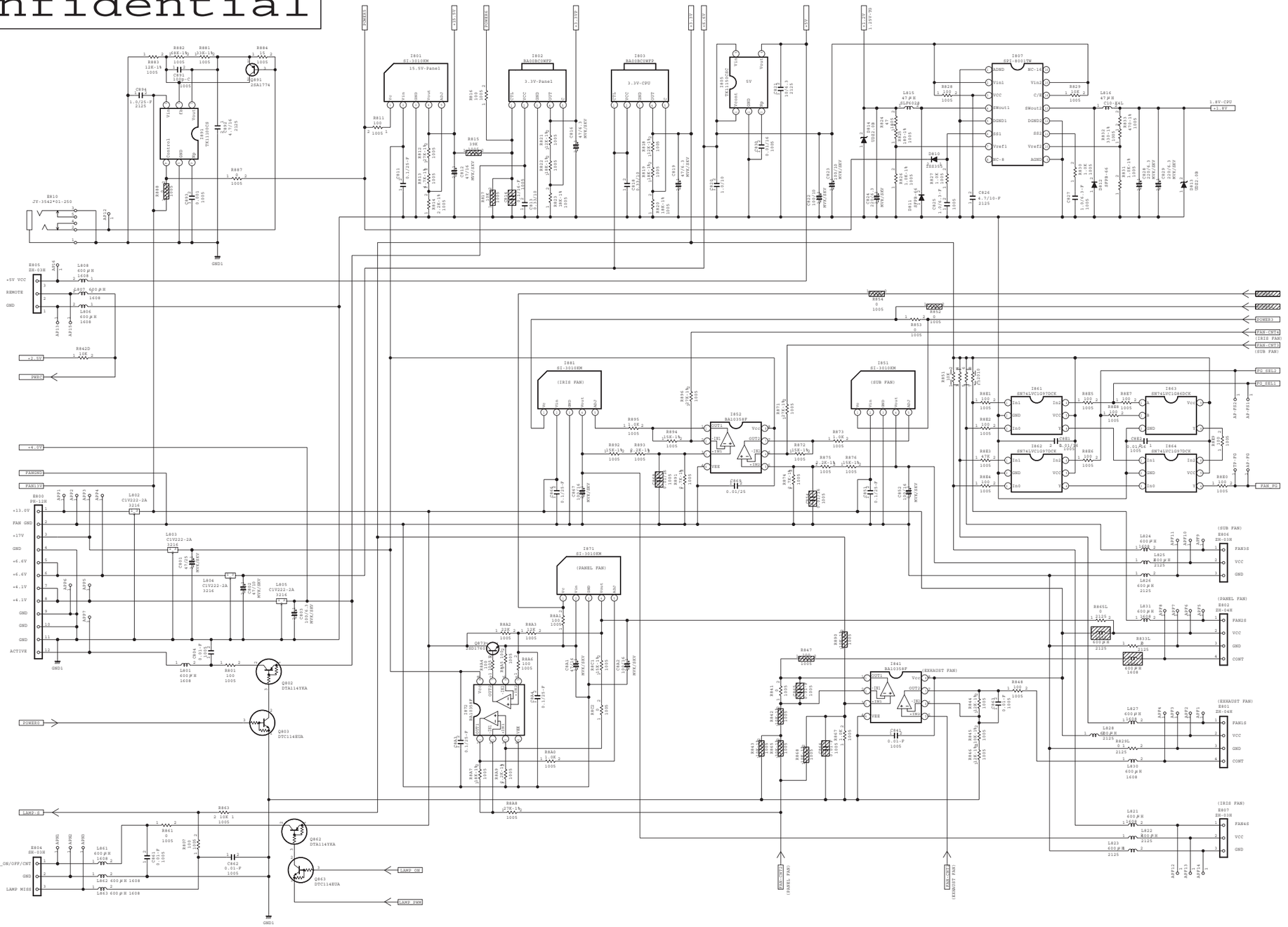


confidential

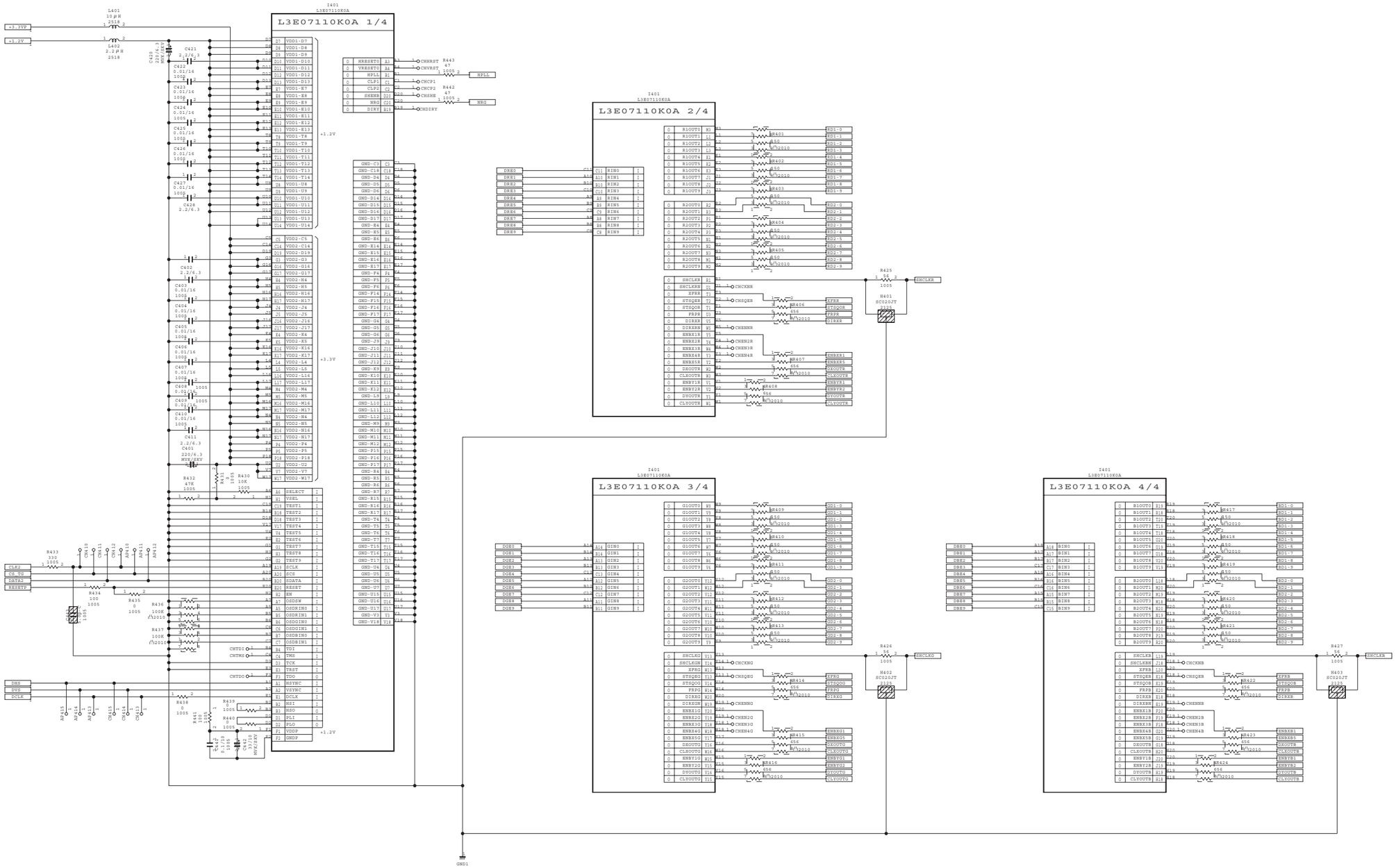

+3.3V
RESETN
CPU-RESET
LAMP-S
OUT-SIDE SENSOR (10K) (Panel duct)
IN-SIDE SENSOR (10K)
OUT-SIDE SENSOR (10K) (Iris duct)
OUTTEMP
INTEMP
IRISTEMP
+5V
LAMP_PWM
PWM
OPT_IN
HPLL
I301 RN5VD26C
S310 SKHHLMA010
Q372 DTC114EUA
Q303 DTA114YKA
I306 SN74LVC1G126DCK
I307 SN74LVC1G126DCK
CS_DAC
DATA1
CLK1
POWER5
DATA2
CLK2
I312 BA10358F
I303 TC4W53FU
I322 NJM2406F
I305 M62376GP-60AD
Q392 IMT5
I391 PNA4602M02HT
Q391 2SC4081
D391 1SS355
D313 DAN202U
D312 DAN202U
D310 DAN202U
D311 DAN202U
IRIS_POS
IRIS
B-REFR
B-REFG
B-REFB
FAN-CNT1
FAN-CNT2
FAN-CNT3
FAN-CNT4
POWER0
POWER3
POWER2
POWER1
E310 ZH-12H
KEYO0
KEYO1
KEYO2
KEYI0
KEYI1
KEYI2
LED-P-G
LED-P-R
LED-TEMP
LED-LAMP
KEYO-0
KEYO-1
KEYO-2
KEYI-0
KEYI-1
KEYI-2
LED GREEN
LED RED
LED TEMP
LED LAMP
GND
GND1

PWB assembly MAIN 3 (C11H2)

confidential



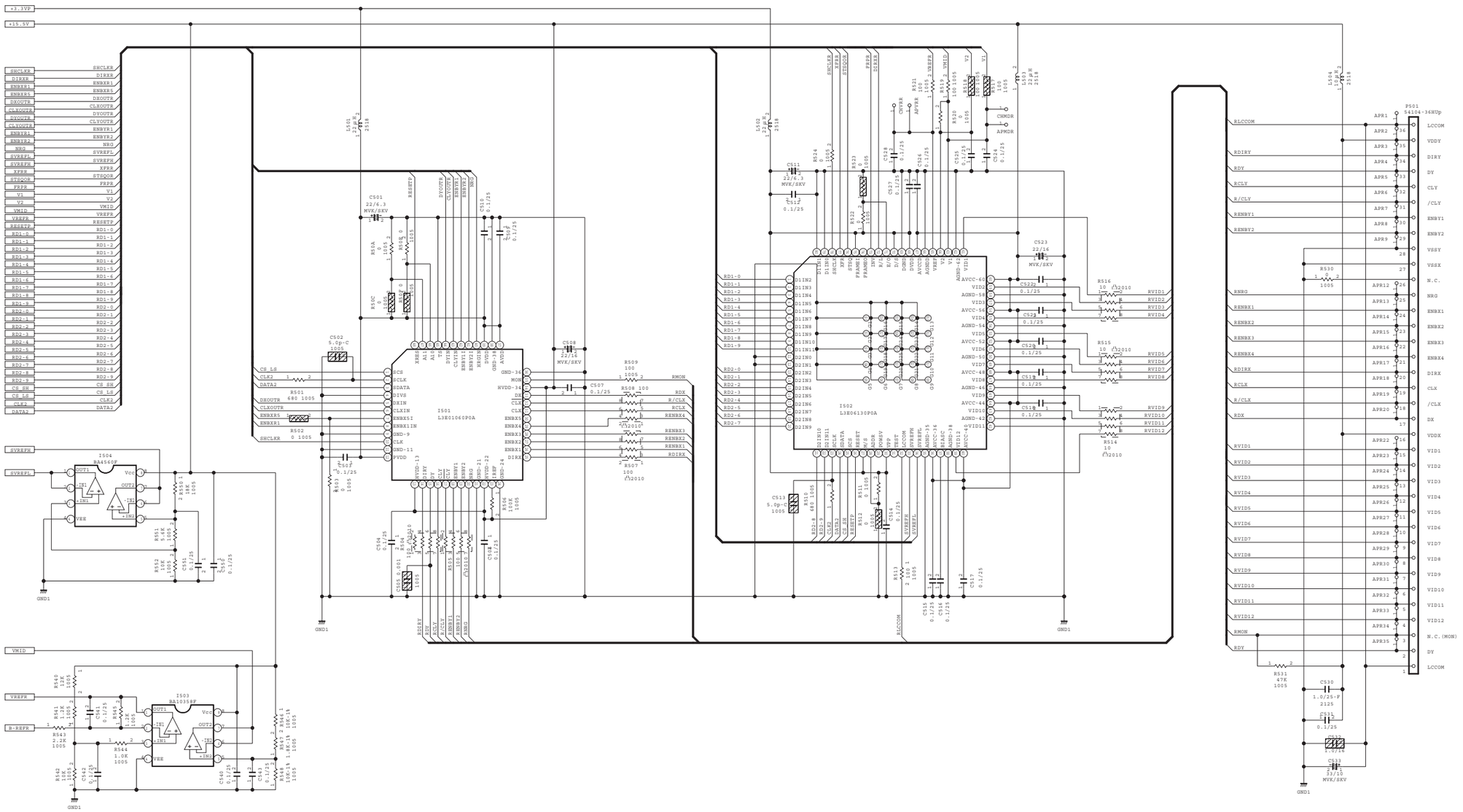
PWB assembly MAIN 4 (C11H2)



confidential

PWB assembly MAIN 5 (C11H2)

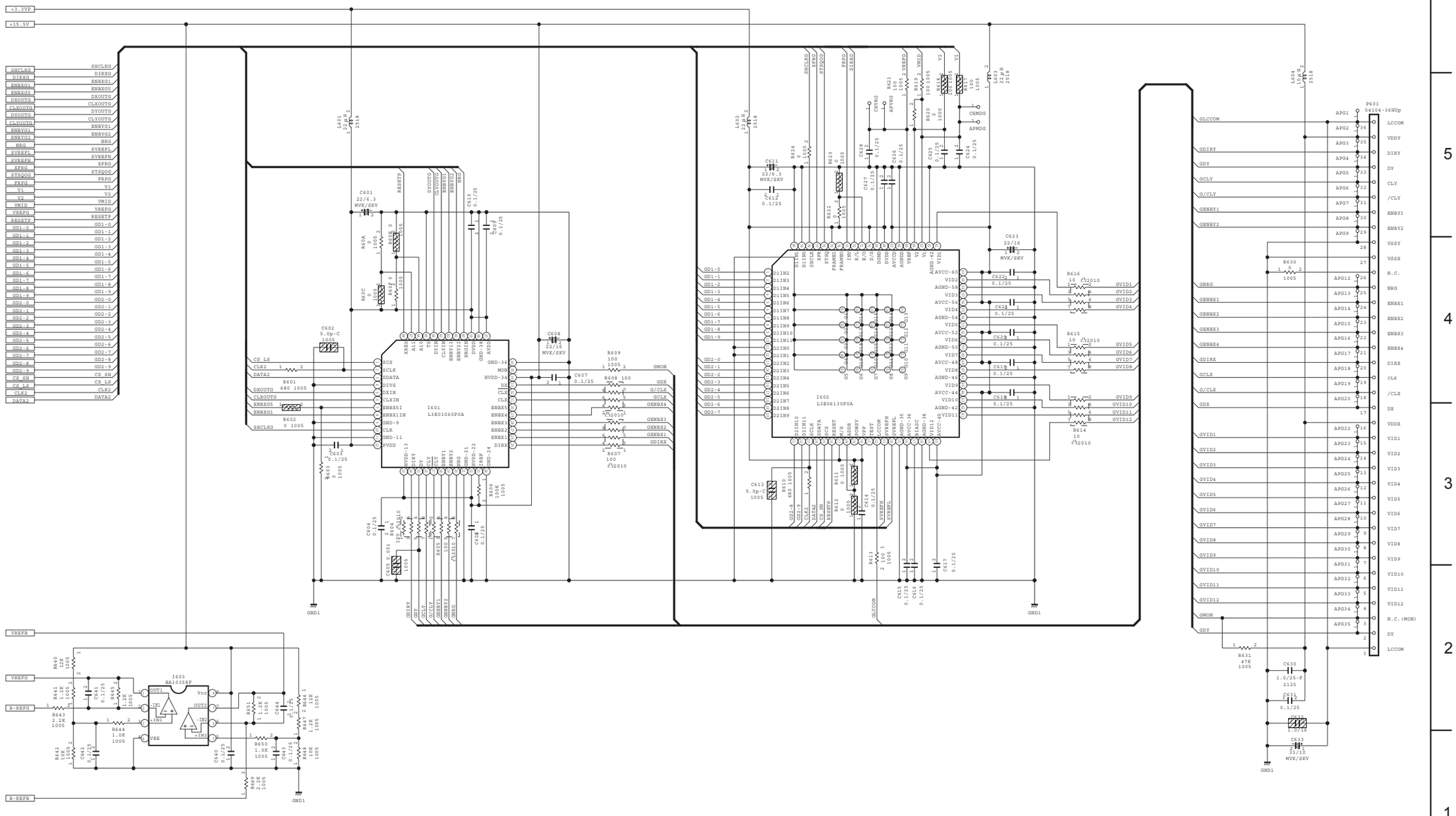
C11H2 R Panel Part



confidential

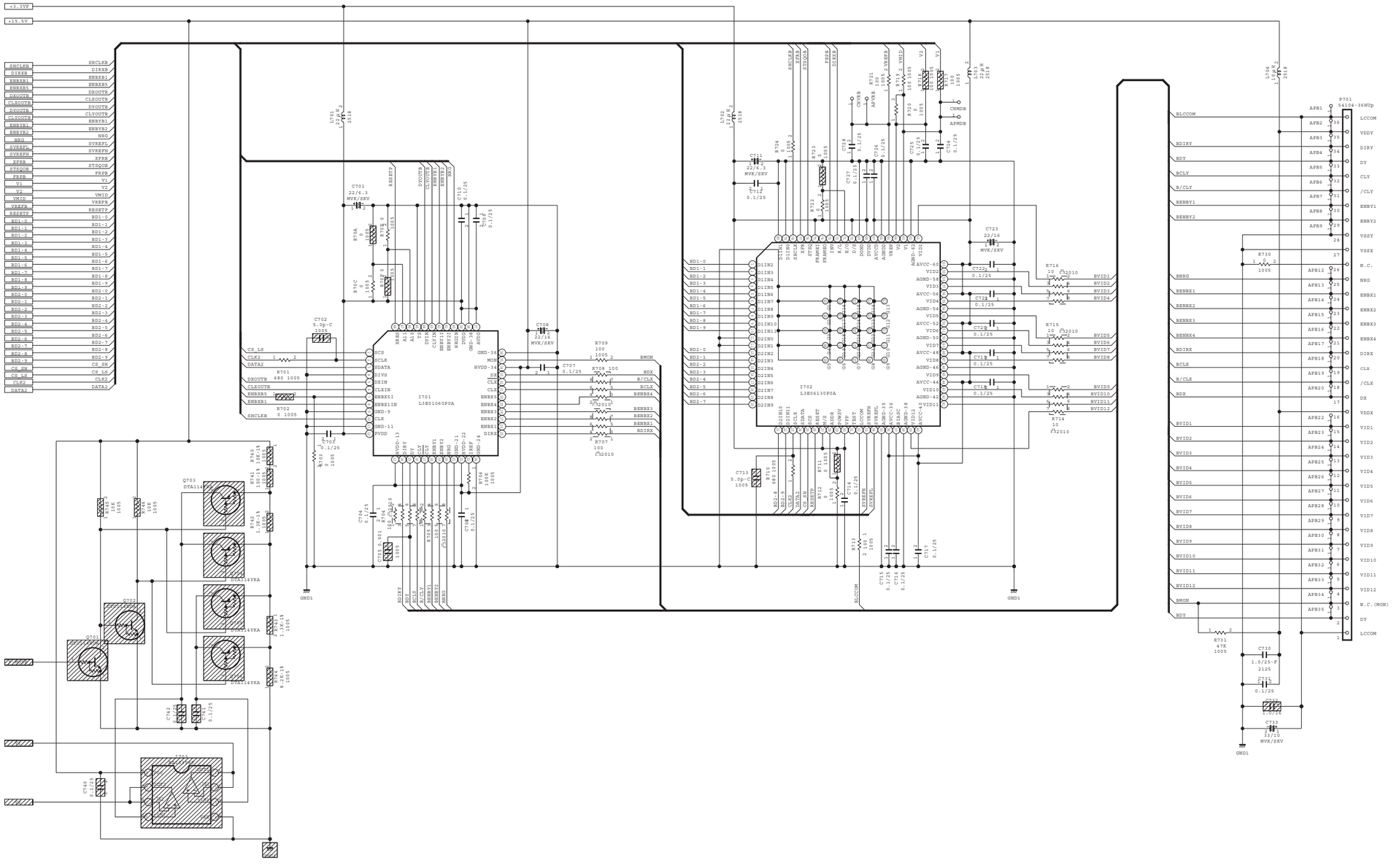
PWB assembly MAIN 6 (C11H2)

C11H2 G Panel Part



PWB assembly MAIN 7 (C11H2)

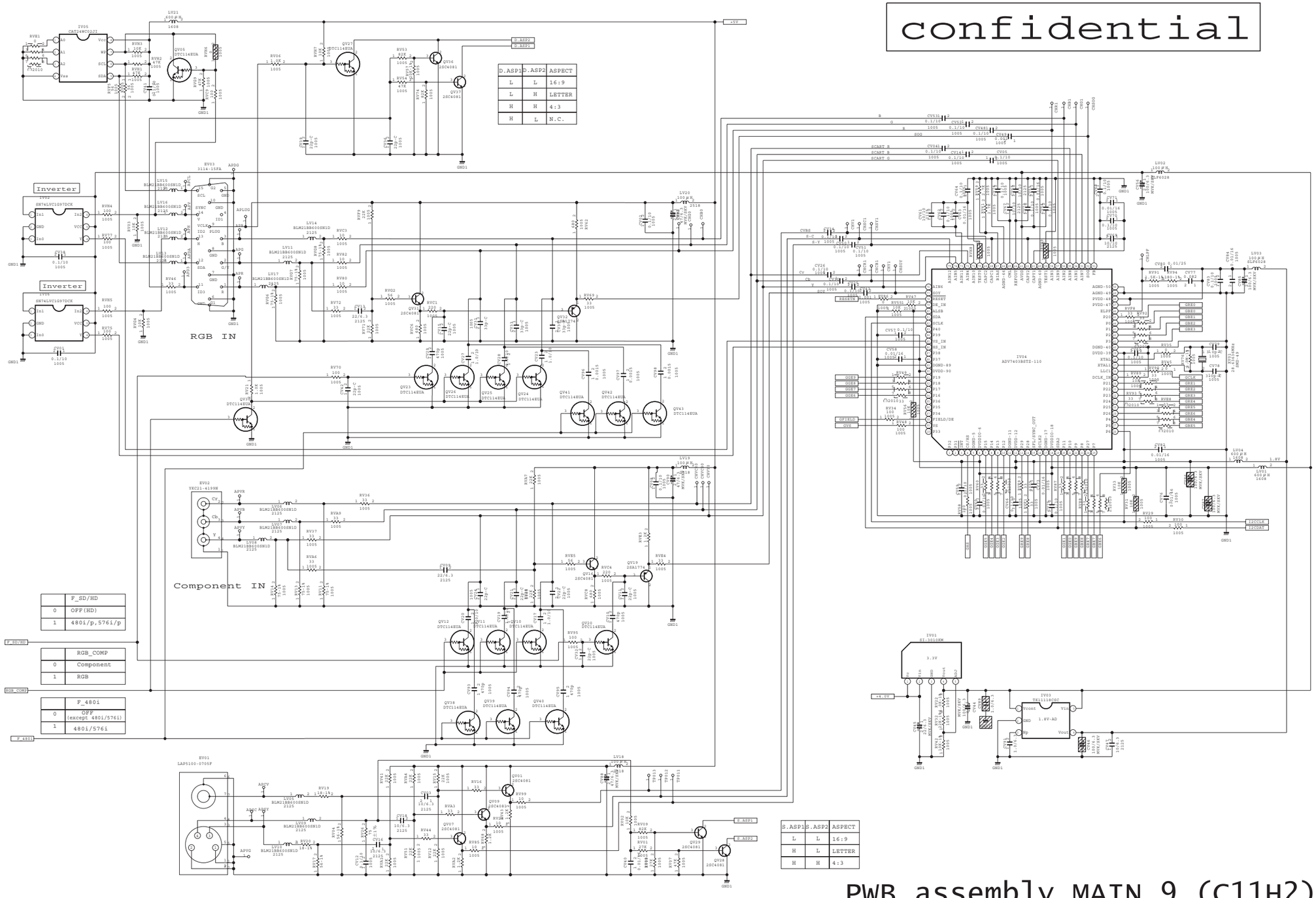
C11H2 B Panel Part



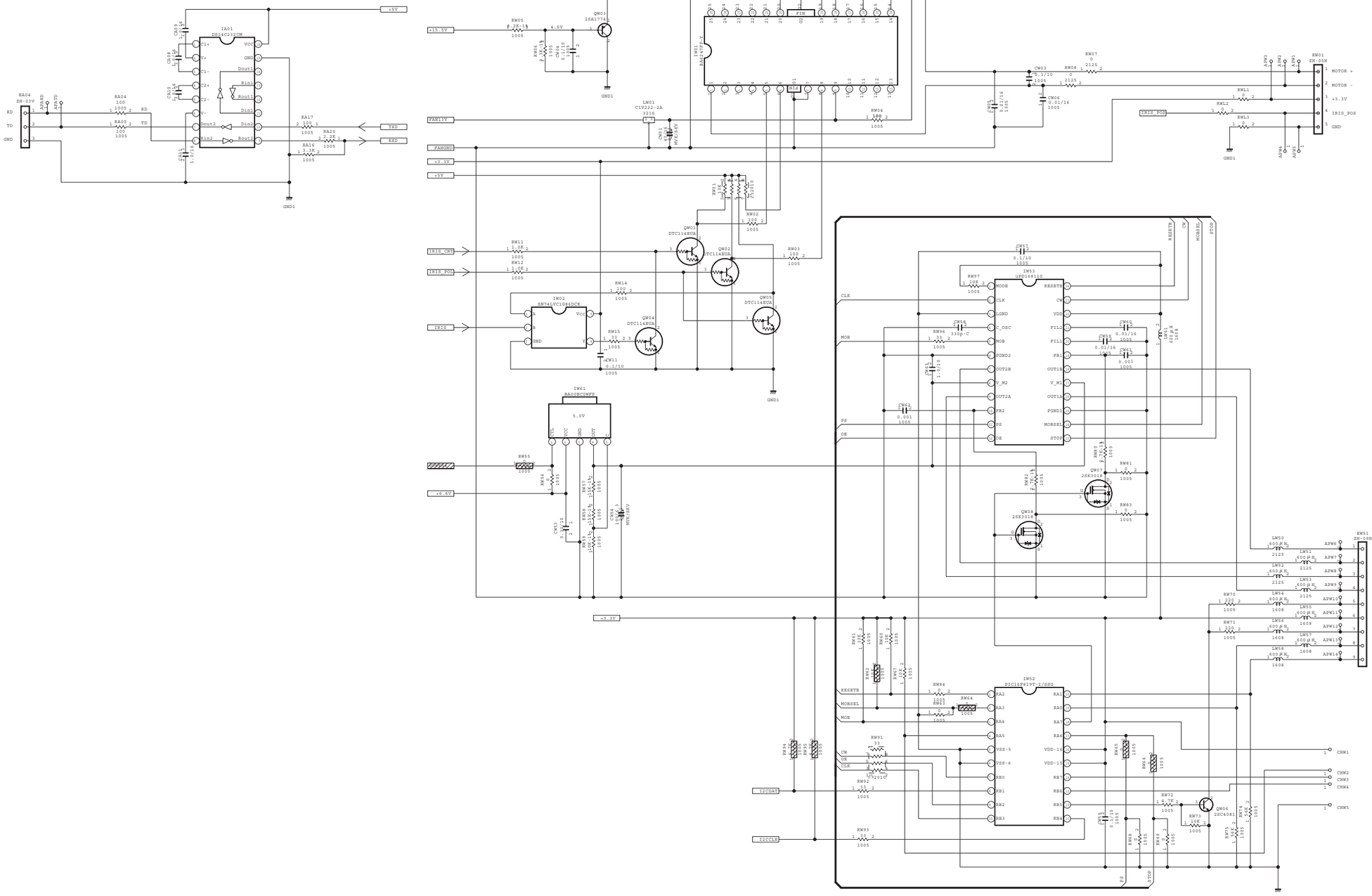
confidential

PWB assembly MAIN 8 (C11H2)

confidential

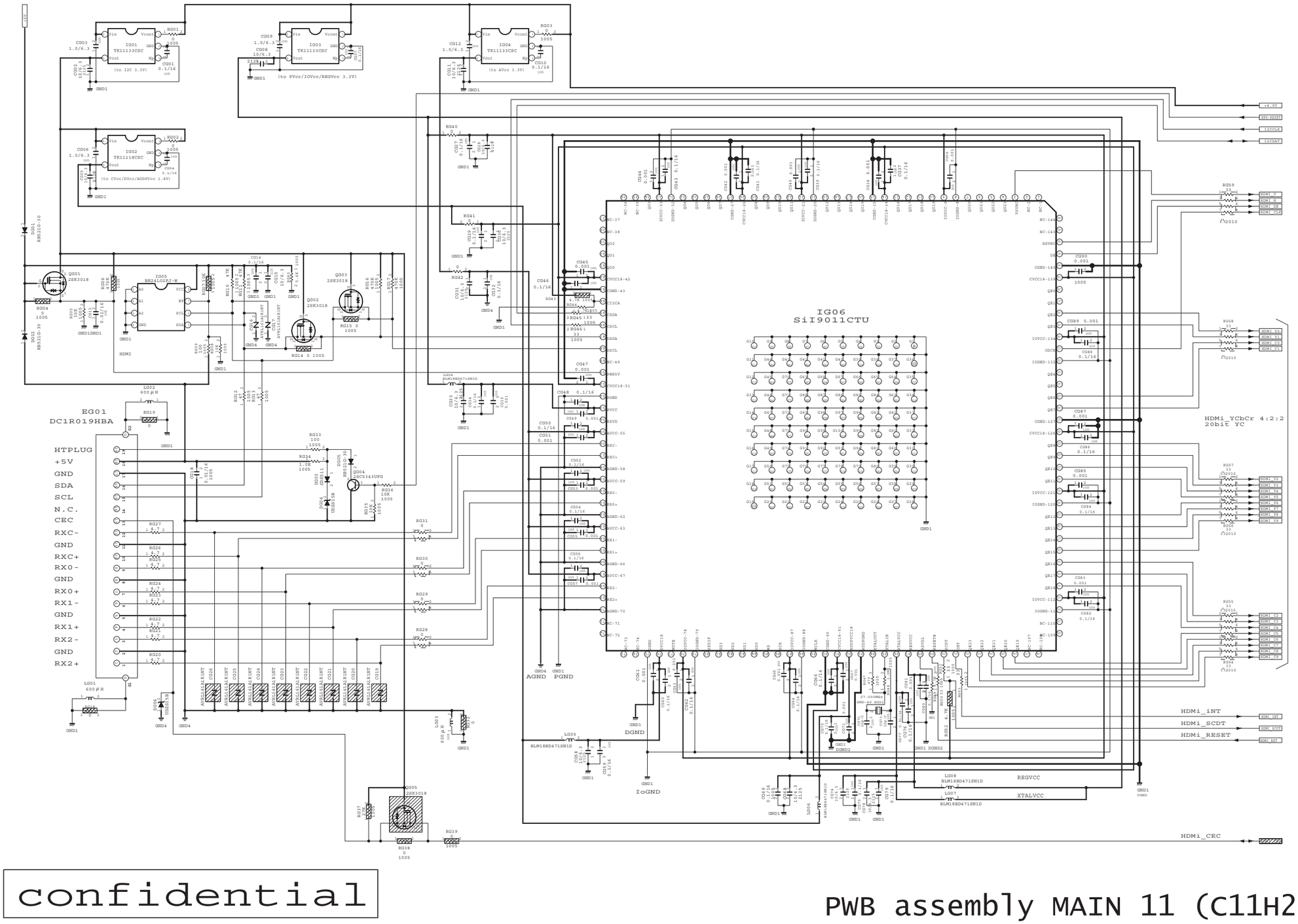


PWB assembly MAIN 9 (C11H2)



confidential

PWB assembly MAIN 10 (C11H2)



confidential

PWB assembly MAIN 11 (C11H2)

Basic circuit diagram list

PWB assembly CONTROL
PWB assembly REMOTE
FILTER UNIT
POWER UNIT BALLAST
POWER UNIT CIRCUIT
PWB assembly KEYPAD
PWB assembly MAIN 1
PWB assembly MAIN 2
PWB assembly MAIN 3
PWB assembly MAIN 4
PWB assembly MAIN 5
PWB assembly MAIN 6
PWB assembly MAIN 7
PWB assembly MAIN 8
PWB assembly MAIN 9
PWB assembly MAIN 10
PWB assembly MAIN 11

HITACHI

PJ-TX300(C11H2) **YK No.0575E**

QR69511 Printed in Japan (JE)